RAILROAD GAZETTE

FRIDAY, JULY 17, 1896.

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Contributions.

Another Electric Railroad Bridge Failure.

CLEVELAND, O., July 13, 1896.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have just read with pleasure Mr. Stowell's article on Bridges for Electric Railroads, published in your last issue. I wish to call your attention to the latest accident of this kind, namely, the bridge of the Dayton Traction Co., which broke down on July 1. A lot of railroad and county officials and invited guests started out that morning on a show trip over the road, which was just completed. But they had to turn back again, on finding, about six miles out, that a bridge over a canal had just tumbled down under the preceding car. One journal says of it: "We judge the bridge was a pony truss structure of wooden or composite construction." It was not. It was a new steel bridge, built by a well-known firm of bridge builders. CIVIL ENGINEER.

Running Over a Submerged Track.

Missouri, Kansas & Texas Railway Co.,
ST. LOUIS, Mo., July 11, 1896.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I take pleasure in furnishing you the information desired in reference to running our trains over submerged tracks near Schell City, Mo., in May of the present year.

The embankments near the Osage River were made principally by casting up from the sides, and are composed of a tough, black clay called "gumbo," which resists the eroding force of the current if left undisturbed, but if shaken or disturbed while under erosion it wears away to a considerable extent. The driving of a stake, for example, to brace the track, develops under the current quite a pot hole where the stake is driven.

In December, 1895, the Osage River rose to a height unequaled for 25 years, and the water was 30 in. deep over the rail in some places. As soon as the water fell the top of the rail was raised to the high water mark by means of rock. These rocks were of such size as to be easily handled by one man, and were placed carefully under the track, being continually compacted by passing trains while work was being done. The banks were widened where necessary.

In May, 1896, contrary to all expectations, the water rose 24 in. higher than in December, and was 24 in. over rail where the current was strongest and 34 in. in the back water, reaching a flood height never before known.

The track was carefully inspected day and night by using a light engine with two flat cars, and men walking through the water holding to the stake pockets on the sides of the cars, the current being too swift for them to retain a foot-hold any other way. A large number of sand bags were used as deemed necessary to protect the bank from washing and to hold the track.

When the water receded the track was found some what out of line and surface. At one spot where cinders had been used as ballast they were washed away, but we had worked rock in under that portion of track while submerged.

Passenger trains were provided with engines of light weight which ran over the division and through the water without change. Heavy freight engines were doubled back and forth on each side of the water and their trains taken across by light engines, as they were much easier on the track. A supply of wood was kept on each side of the water and fires were made on top of the coal in the upper part of the fireboxes. It was necessary to run very slowly through the 24 to 34 in. of water and the time used to cross the three miles of submerged track and make the run of 4 miles between Rockville and Schell City, was about 50 minutes. Track was submerged ten days.

A. A. ALLEN, *Assistant General Manger.*

Control of Heavy Street Cars on Grades.

ALBANY, N. Y., July 14, 1896.

TO THE EDITOR OF THE RAILROAD GAZETTE:

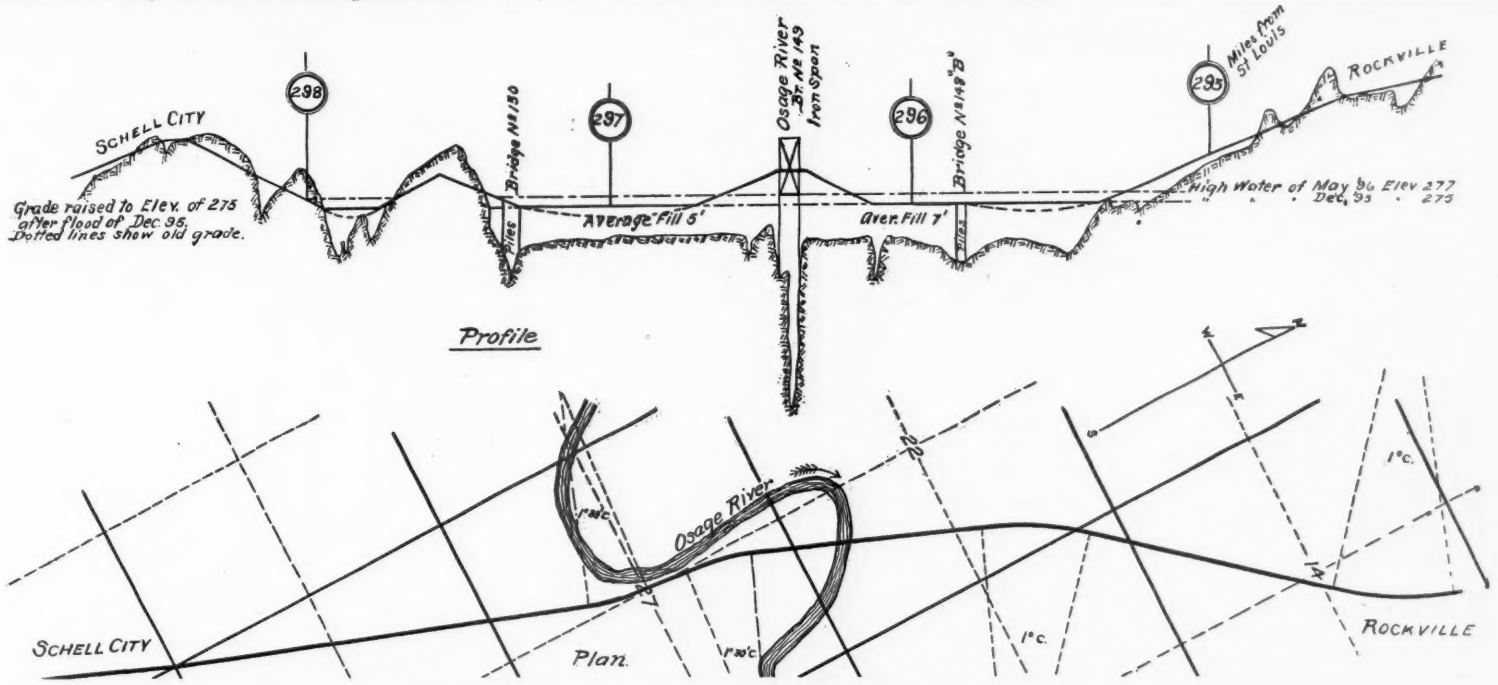
A recent decision of the New York Railroad Commission seems to me open to criticism, namely, the one relating to the runaway accident on the Nassau Electric road, and in which the Commissioners recommended that on steep grades all cars be furnished with "dogs' similar to those used in hill streets in this city.

This "dog" is a heavy, pointed iron bar, hinged underneath the car, so that when let go it drags on the ground and as soon as the car stops catches against a paving stone and bolds the car. When not in use it is held up by a chain passing through a hole in the rear platform and hanging to a hook on the dashboard. When going up hill the conductor loosens the chain from the hook and lets the "dog" drop.

The "dog" is objectionable for three reasons. It is very noisy as it rattles over the pavement; it brings up a car with a disagreeable jerk; and it is not always effective and sometimes dangerous. On one occasion the car ran back down the hill in spite of the "dog," colliding with an up-bound car and wrecking things generally. On another occasion, as a car was going down hill the "dog" under the forward end accidentally dropped, throwing the motor-man over the dashboard and killing him.

The Commissioners do not seem to be aware that this same Albany Railway has on many of its cars a newer and much better device than the "dog," and free from all its objections. But as I am not booming either the patentee or the railroad I will not describe it. The point I want to make is that if the Commissioners see fit to make recommendation of any device they ought at least to acquaint themselves with its record and not recommend something that has proved itself in use to be inefficient and dangerous. ELECTRICITY.

Following is the substance of the report of the State Railroad Commissioners of New York on the derailment above referred to. It was an electric street car running on Thirty-ninth street, Brooklyn, N. Y., Sunday, June 7; a boy was killed, another passenger fatally injured and others more or less hurt. The car, an open one, was overloaded, and the trolley pole falling away from the wire on a steep hill, the car ran back to the foot of the incline; and about 40 of the 133 passengers upon it were so frightened that they jumped off. There was evidence that the trolley pole was out of order, and it was alleged that boys on the car tampered with it. But without trying to reconcile conflicting statements on these points the Commissioners decide that: The primary cause of the runaway was the overcrowding of the car, so that the conductor could not reach the rear platform to apply the brakes. The motorman applied the brake, and the overloaded condition of the car is the only apparent reason why it did not hold. Not more than five passengers should be allowed on the front seat of an open car; more than that number would interfere with the freedom of action of the motorman. Passengers should not be allowed to ride upon the side steps of open cars, and if persons persist in standing there the conductor should refuse to move the car. All cars to be run on a grade of five per cent. or more, should have an auxiliary brake. In Albany a "dog" is used on cars ascending steep grades, which, whenever a stop is made, assists in holding the car. When running an level track or going down hill the conductor fastens the "dog" up free from the ground. This, or a similar device, is recommended to all electric and cable roads. The cable cars on Third avenue, New York City, have an auxiliary brake. When ascending grades of five per cent. or more, conductors should remain on the rear platform. An Inspector of the road where this accident occurred is censured for not thoroughly examining the car when the motorman had reported it in bad condition.



Submerged Track, Missouri, Kansas & Texas Railway—Across Osage River Bottom.

Thirty-six Passengers Killed in Two Collisions.

Thirty-one passengers are reported killed by a butting collision on the Chicago & Northwestern last Saturday night near Logan, Ia. A picnic party, composed of employees of the Union Pacific road at Omaha and Council Bluffs, had just started for home (from a side track, some distance west of Logan) when it was met by an east-bound freight, running at high speed, and the engines and first two or three cars were badly crushed. Besides the killed, about 40 passengers were injured. The cause of the collision is said to have been forgetfulness on the part of one of the enginemen, but no authentic particulars have yet reached us.

On the same day there was a collision between an excursion train and a freight on the Chicago & Northern Pacific, near Chicago, in which five passengers were killed and 15 injured. In this case it is said that a misplaced switch was the cause.

A third disaster, reported on July 12, was that of a freight train, apparently a work train, on the island of Jamaica, where an American contractor is at work building an extension of the railroad. Fifteen persons were killed.

The New Fast Train Services Between London and Scotland.

BY J. PEARSON PATTINSON.

The remarkable records made last autumn on the West and East Coast routes between London and Aberdeen, which probably stimulated the New York Central and the Lake Shore roads to "go one better," will, so far

as can now be seen, have no counterpart this year. Accelerations have, indeed, been made, and several new, very fast trains put on between the points named, but unless precipitated by some unforeseen cause, it is probable that no record making will take place this summer, and that the United States will be left in possession of its well-won laurels.

If, however, we in England propose neither to beat the Lake Shore record nor to depose the Empire State express from its position as the fastest regular train in the world, we can yet show, as between London and Edinburgh, Glasgow, Perth and Aberdeen a service of trains which, *for frequency and speed combined*, quite outclass anything in

London to Edinburgh.

(Note:—Trains with an inclusive speed lower than 40 miles per hour are not included below.)

East Coast Route, 392¼ miles.		West Coast Route, 400 miles.
a. m. p. m.		a. m. p. m.
10:00 11:20 2:20 7:45 8:15 10:00 11:30	Departure from London	10:00 11:30 2:00 8:50 11:50
6:30 7:45 10:45 3:20 3:40 5:30 7:00	Arrival in Edinburgh	6:30 7:55 10:30 6:40 7:50
7 hrs. 25 mins.	Fastest train	8 hours.
Four	No. of trains at or over 50 miles per hour inclusive speed	One.
Seven	No. of trains at or over 45 miles per hour inclusive speed	Four.
Seven	No. of trains at or over 40 miles per hour inclusive speed	Five.
52.92 m. p. h.	Average inclusive speed of best train	50 m. p. h.

London to Glasgow.

East Coast Route, 439¾ miles.		West Coast Route, 401¼ miles.
a. m. p. m.		a. m. p. m.
10:00 8:15 10:00 11:30	Departure from London	10:00 11:20 2:00 8:50 11:50
8:00 5:50 7:18 8:25	Arrival in Glasgow	6:45 8:00 10:50 6:45 7.50
8 hrs. 55 mins.	Fastest train	8 hours.
None	No. of trains at or over 50 miles per hour inclusive speed	One.
Three	No. of trains at or over 45 miles per hour inclusive speed	Four.
Four	No. of trains at or over 40 miles per hour inclusive speed	Five.
49.32 m. p. h.	Average inclusive speed of best train	50.19 m. p. h.

London to Perth.

East Coast Route, 440¼ miles.		West Coast Route. 449¼ miles.
a. m. p. m.		a. m. p. m.
10:00 7:45 8:15 11:30	Departure from London	10:00 2:00 8:00 8:50 10:15 11:50
7:52 4:30 5:00 8:50	Arrival in Perth	7:55 12:18 4:36 7:55 6:55 9:10
8 hrs. 45 mins.	Fastest train	8 hrs. 36 mins.
Two	No. of trains at or over 50 miler per hour inclusive speed	Two.
Three	No. of trains at or over 45 miles per hour inclusive speed	Four.
Four	No. of trains at or over 40 miles per hour inclusive speed	Six.
50.31 m. p. h.	Average inclusive speed of best train	52.24 m. p. h.

London to Aberdeen.

East Coast Route, 523 miles.		West Coast Route, 540 miles.
a. m. p. m.		a. m. p. m.
10:00 10:00 11:30	Departure from London	10:00 2:00 8:00 10:15 11:50
10:50 6:35 8:30 10:30	Arrival in Aberdeen	10:15 3:00 6:25 8:50 11:25
10 hr. 20 mins.	Fastest train	10 hrs. 25 mins.
One	No. of trains at or over 50 miles per hour inclusive speed	Two.
Three	No. of trains at or over 45 miles per hour inclusive speed	Three.
Four	No. of trains at or over 40 miles per hour inclusive speed	Five.
50.61 m. p. h.	Average inclusive speed of best train	51.84 m. p. h.

the States. The following tables clearly and concisely show this to be the case, and the method of arrangement adopted will enable some idea to be formed of the relative merits of the rival routes. It will be freely granted that the general results are most creditable, especially when it is considered that gradients, particularly on the West Coast route, are very severe and the trains hauled are by no means light. The down services [from London] as being much more speedy than the up [to London] are alone considered, and the Midland route, which does not compete seriously, is left out of the comparison.

Machinery for the Locomotive Works at Nijni Novgorod.

The names of the firms in this country having orders for machinery or tools for the new locomotive building shops of the Russian American Mfg. Co., at Nijni Novgorod, were given in the account of the enterprise published last week. A brief statement of the machines ordered from some of the builders was also given. Since the article was published a list of the machinery ordered from others of the firms named has been obtained, and is published below.

Bement, Miles & Co , Philadelphia, important locomotive tools.

Edwin Harrington, Son & Co., Philadelphia, several different styles of facing lathes; special lathe for turning locomotive rocker arms; special lathe for turning wrist pins; a two-spindle horizontal centering machine and drill presses, especially adapted for locomotive shop work.

Pawtucket Manufacturing Co., of Pawtucket, R. I., for 15 machines, the value being upwards of $12,000. The machines building are one improved lever shears, two open die screw threaders, one cold-punching nut machine to make ¾-in. nuts and smaller, one No. 4 nut machine for 1¼ in. nuts, one double bolt pointer and trimmer, one ½-in. bolt forging machine, one ⅝-in. and one 1½-in .No. 2 upsetter, one No. 2 round head bolt machine, one 6 spindle solid die bolt threader, one 4-spindle nut tapper, one 1½-in. screw shaver and one No. 2 shear.

Payne Engine Co., of Elmira, N. Y., for eight engines, of the simple enter crank, high-speed, automatic type, with cylinders of 8 in. × 10 in. They are mounted on full height raised bases, and are fitted with the firm's patent system of oil circulation. In this system a large reservoir on top of the frame feeds the oil to the main bearings, crank pin and crosshead. Pipes inside of the frame collect this oil and drain it to a chamber underneath the engine base, in which is placed a small pump, operated by the rocker arm of the valve connection. This pump returns the oil to the upper reservoir, where it is filtered and used over again. This arrangement provides for self-oiling without enclosing the engine. These engines are equipped with a simple type of inertia governor, having but two pieces and one bearing, and making the regulation of speed under all changes of load less than one per cent. The engines are made to standard gages, and all of the parts are interchangeable.

Powell Planer Co., of Worcester, Mass., for two metal-planing machines that will plane 72 in. in width, 72 in. in height, and 10 ft. in length, with two heads on the cross rail, and one head on each face of each housing; also two locomotive connecting rod planers, which will take 48 in. in width, and plane connecting rods from 3½ ft. to 11 ft. in length.

Tabor Manufacturing Co., Elizabeth, N. J., for one 20-in. Duplex moulding machine, fitted with patterns for journal bearings, four in flask, and will mold both parts of flask in one operation. It is also suitable for moulding brake shoes, brake holders, wedges, columns, center bearings and general castings.

Whiting Foundry Equipment Co., Harvey, Ill., two 5 ft. 6 in. diameter Whiting cupolas, having a melting capacity of 9 to 10 tons an hour. These cupolas will be fitted with improved adjustable Whiting tuyeres and a new type tuyere dampers, blast gage, etc.

Warren & Swasey, of Cleveland, O., for one two-spindle valve milling machine, one cock grinder, one reamer grinder, one 18-in. swing forming monitor lathe with geared friction head, two 18-in. swing Universal monitor lathes with back gears, two 24-in. swing Universal lathes, two 18-in. swing brass finishers' lathes and one 16-in. double head key lathe.

Niles Tool Works, Hamilton, O., 51-in. boring and turning mill, 2 heads; two quartering machines of different sizes; two 22-in. engine lathes; double cutting-off and centering machine to take axles 10-in. diameter, and a 100 in. 300-ton hydrostatic press. These are all powerful tools, especially adapted for railroad work.

Annulling Part of a Train Order.*

BY J. F. MACKIE.

When the amendments to the Rules and Forms of the Standard Code of the American Railway Association, submitted by the Train Rules Committee of that body, were under discussion at New York last October, a spirited debate sprang up upon a proposed amendment to Rule 523. From the time of the original adoption of the Standard Code in 1887 that rule had read: "An order which includes more than one specified movement must not be superseded."

The proposed amendment provided that:

"Where more than one movement is included in an order, any part of the order specifying a particular movement may be superseded or annulled."

Mr. Kenly, of the committee, in defending this change, stated that the committee had received many requests that the existing rule be made more elastic. "In our own practice," said he, "we are obliged to do so. We could not operate under the present rule."

It must have occurred to the committee, as it at once occurs to dispatchers, that, as Form L, which specifies how an order may be annulled or superseded, contains no provision whatsoever, even by implication, for the annulment of a part of an order, and as no other form does, a new form, applicable to the new conditions, should be submitted. This was not done, and the last two words of the amendment, "or annulled," were stricken out, and the Standard Code remains, as before, in the attitude of forbidding, or at least not permitting, that which, in practice, many of the roads adopting it have found to be necessary.

This being the case, it becomes eminently proper for the Train Dispatchers' Association to discuss this question, and it may be, to lighten up the fog in which the American Association has left it. And I may say here, simply as a matter of justice to the Train Dispatchers' Association, that, in 1891, in its memorial of that year to the American Railway Association, it pointed out the loopholes of danger in Rule 20, and recommended the changes in rules 81, 105, 108, 110 and 111, and in Form G, which have since been adopted as amendments to the Standard Code, besides others which have not *yet* been accepted by the great authority of the American Railway Association: one of them being a variation of Form L, providing for the annulment of part of an order, which, I am persuaded, is precisely the form not submitted to the American Railway Association last October, the missing link between Form L and Rule 523, which, it is more than likely, was buried in the Committee's waste-basket too deep for resurrection at that time. This form read as follows:

"That part of Order No. ....., reading '.....' is annulled."

I have been unable to discover or learn of any form better adapted to the purpose, and doubt if it can be improved upon. It is hereby resubmitted for your consideration.

Every dispatcher of much experience will recall occasions when the use of such a form has been found desirable. Many of you, like myself, have used it. Do you know of any objection to its use? Have any of you found that the use of the clear and simple "instead of" has been a source of danger in superseding, as all of you have done, some part of some order that needed to be changed? I venture to say you have not. Can any of you detect, or even imagine the presence of danger in the use of the form I have quoted, when applied to the annulment of part of an order? Are not, in your experience, annulment and supersedure alike shielded from danger by the use of the form proper to each, clear, precise and impossible of misunderstanding as each is or may be made?

There is a lurking impression in the minds of some experienced and well-informed railroad men that there is grave and peculiar danger in changing a telegraphic train order, and, more particularly, some part of it. This made itself audible in the debate upon this question at the October meeting of the American Railway Association. One gentleman called it "an exceedingly dangerous practice. Even if you place about it all the safeguards of forms and otherwise that you can possibly get, it is still a dangerous practice." Another said, "It has been my experience that there has not been any trouble except in superseding orders." There were others, evidently like-minded, in that meeting. Yet I venture to say, that not one of these gentlemen could point out an instance of trouble resulting from a change of orders, either by supersedure or annulment of the whole or part of an order, under the forms of the Standard Code, or any other whose rules and forms are equally clear and explicit, that would not have been quite as likely to occur with *any* telegraphic train order. It has been my experience that a change in orders is even less likely to be forgotten or misconstrued than the original order. The fact of change stimulates, if anything, the memory of trainmen and, instead of bewildering, rather emphasizes, by impressing anew upon the minds of those interested the instructions given.

Coming from the general to the particular, let us consider if there be any necessity for annuling a part of an order. I have in mind a certain order once given by me. I was starting a fast stock train from G., the western terminus of the division upon which I was a dispatcher. The train was coming from another division, and a good run was of such importance that I felt justified in holding even a passenger train a few minutes, if thereby 25 or 30 minutes could be gained for the stock train. In anticipation, therefore, of its departure from G. at 3:30 p. m., the connecting division having advised me that it would reach G. not later than 3:20 p. m., and bearing in mind the "linked sweetness, long drawn out" of the repetitions of the Standard Code, I proceeded to get ready the order, as follows:

"Order 33

To No. 7 & Ex. 655, W., C.

To No. 31 & Ex. 921, W., D.

To Ex. 700 and all second-class trains W., A.

C. & E. Eng. 711, G.

Engine 711 will run extra and has right of track against all second and inferior class trains G to A, will wait at F until 3:50 p. m. for Ex. 921 west, at E until 4:10 p m. for No. 31 (Eng. 309), at D until 4:35 p. m., for Ex. 655 west, at C until five o'clock p. m. for Ex. 700 west, and may run not to exceed 30 miles per hour. No. 7 (Eng.* 109) will wait at E until 4:20 p. m. for Ex. 711 east."

The stock train "fell down," at least it stumbled, on the other division, and about the time it was expected to "sign up," G ticked out "Just in; get out 3:45 sure," and there I was. It was impracticable, from lack of time, to annul the entire order. There was no way to supersede No. 7's order, nothing, in fact, to supersede it with and, in addition, no necessity for holding that train at either E or F, the extra leaving G at 3:45 p. m., having ample time to "make" F without help. What was the right thing to do? A memory of the form then reposing in a certain committee's waste basket flashed upon me, and I acted accordingly.

"Order 38

To No. 7 C.

To Ex. 711 G. That part of order No. 33 reading 'No 7 will wait at E until 4:20 p. m., for Ex. 711 east, is annulled."

And the thing was safely and quickly done.

Whenever it becomes necessary or expedient to annul part of an order it is always when supersedure is inapplicable and annulling the whole order impracticable. Supersedure is substitution, and when there is nothing to be substituted, is useless. And when, as in the case

* A paper read before the ninth annual convention of the Train Dispatchers' Association.

* The continuous order was permissible, but not the "X" response or any other holding signal.
No 7 (first-class) due at E at 4:11 p. m.

cited, the only practical resource is to *annul* part of an order, there would seem to be no good reason, either of safety or expediency, why it should not be done. There is none, I make bold to say, that does not apply with equal force to supersedure. The fact that one was taken and the other left by the American Railway Association is another proof that the Train Dispatchers' Association has good reason for being, and that if it lives up to its opportunities, its usefulness as an educative influence in the railway world, as well as to its members, hae not ended.

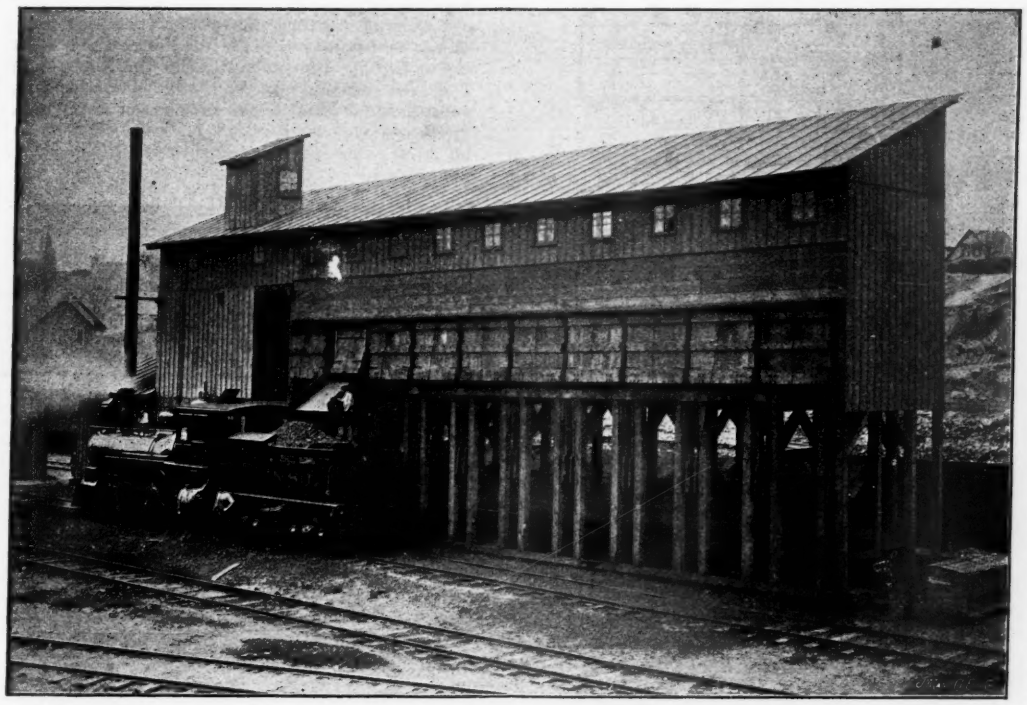


Fig. 1.—Front View—Wabash Coaling Station.

Coaling Station at Wabash, Ind.

The accompanying illustrations show the coaling station erected, in the early part of this year, at the new shops of the Cleveland, Cincinnati, Chicago & St. Louis Ry., at Wabash, Ind. This plant not only handles the coal but takes care of the ashes as well, all operations being performed by means of conveyors.

Fig. 1 is an engraving made from a photograph taken from the front of the building, while Fig. 2 shows the view from the rear. The building is 92 ft. 3 in. long by 14 ft. wide, with a low extension at one end, 18 ft. long, in which is placed the engine and boiler. The building is between two tracks, one being used by locomotives taking coal, while the other is for coal cars and cars being loaded with ashes. There are 10 pockets for coal on the front side of the building and two ash pockets on the rear side. Coal is received either in hopper or flat bottom cars on the unloading track.

Hopper cars are unloaded directly into a pit between the rails. In Fig. 2 the last car is directly over this pit. From this pit the coal is delivered through a gate to the inclined conveyor, shown in Fig. 2, which carries it to the top of the building and dumps it into an inclined chute, which in turn delivers it to a horizontal conveyor which passes over the pockets. Over every pocket there is a gate in the trough of the conveyor, which is opened and closed by a rack and pinion, operated by hand wheels. When a gate is closed, the coal is carried over it and beyond to the first open gate, through which it drops into the pocket. Battens placed on the sides of each pocket indicate the height to which they must be filled for two tons, three tons, etc. From the pockets, the coal is delivered to the locomotives in the usual manner, as seen from Fig. 1.

When coal is received in flat-bottom cars it is shoveled on to a horizontal conveyor, which delivers it to the inclined conveyor mentioned before, and it is then handled in the same manner as already described.

There is an ash pit 28 ft. long, directly under the locomotive shown in Fig. 1. The bottom of the pit consists of cast-iron gratings made in short sections. Under the gratings is a screw conveyor running the entire length of the pit, which delivers the ash to a second screw conveyor placed at right angles to the first. This carries the ash into the boot of an elevator which takes it to the top of the building, and by means of two aprons delivers it into the two ash pockets, to be seen in Fig. 2. Plates placed on the grating in the bottom of the ash pit, form a floor upon which the ash is allowed to accumulate until the pit is full. The conveyor is then started, the plates being removed one at a time, thus allowing the ash to feed on to the conveyor with regularity. When the pit is empty, the plates are put back in place, and it is again ready for use. The mechanism is driven by cables and chain belts from a 30 H. P. engine.

This plant has a capacity for coaling 100 engines a day and when running to its full capacity requires three men to operate.

The first cost was not more than for an ordinary coaling station with trestle, ash pit, depressed track, etc., and occupies much less space than would an ordinary plant of similar capacity.

Mr. Wm. Garstang, Superintendent of Motive Power of the road, writes us as follows: "This plant has been in service since the first of the year without a single failure, and its performance has been entirely satisfactory. Our people, as well as the officers of other companies, have declared hat it is the most complete station for coaling engines and taking care of the ashes that has come to their notice."

This plant was designed and installed by the Link Belt Machinery Company, of Chicago. The same company is at present working on the plans for similar plants to be erected on several Western roads.

The Binghamton Suspension Bridge.

The following is the report of Mr. Chas. F. Stowell, made June 2, 1896, to Geo. C. Green, Esq., Mayor of Binghamton, N. Y., concerning the suspension bridge over the Chenango River at Ferry street, Binghamton:

The main cables of this bridge are each composed of seven wire ropes, 1⅛ in. in dameter, having a span of 362 ft. between centers of towers, and a dip of 30 ft. at the center. The floor is suspended by vertical hangers, either 1-in. rods or ¾-in. wire ropes, spaced 5 ft. apart, thus dividing the clear span into 70 panels of 5 ft. each. The cables are supplemented by eight back stays running from the top of each tower to the third and each alternate hanger up to the seventeenth from the abutments. The clear width of the roadway is 16 ft. and of each sidewalk 6 ft. There is a wooden stiffening truss outside of each sidewalk resting on the ends of the floor beams, and doing duty also as a hand rail.

In December, 1890, I made a report to the Railroad Commissioners in answer to an inquiry as to whether this bridge would carry electric cars. I stated that it would, but that the weight of the cars must be limited, and also recommended the strengthening of the track stringers and floor beams, which was not done nearly to the extent recommended. I also find that much heaver loads have been used than the railroad company at that time stated would cross the bridge, and in consequence of this, together with the natural deterioration of exposed timber work in five and a half years, the stiffening truss on the side nearest the track is now all out of shape, badly decayed and utterly worthless for the purpose for which it was designed. The truss on the opposite side is somewnat better, though far from being thoroughly efficient.

The cables being thus practically freed from the influence of the stiffening trusses, are left to adapt themselves to the conditions of passing loads and the consequent deformation is excessive. The floor can be seen to rise and fall in a wave-like motion in front of and behind each passing car, the greatest extent of the motion being about 8 in. This freedom of motion in turn permits the strands of the cable to move slightly upon one another, breaking the coating of paint which covers them and permitting moisture to penetrate into the interior. It also wears the cables under the yokes to which the hangers are fastened. The effect is greatest where the motion is greatest, namely, at the middle of the span, where several wires have been entirely cut through by the yokes and where the interior, as far as it could be gotten at by scraping away the paint, shows rusting wires.

I also examined the anchorages, which, at the time of my previous examination, in 1890, could not be closely looked into. One anchorage on the south side of the river was opened and the wires found in quite good condition, but little rust being apparent. On the north side it appears that the anchorages had been repaired some years ago and a short length of cable left exposed which had been originally covered by the masonry. At these anchorages the cables were found badly pitted with rust and a few were entirely eaten through. The rust has affected every wire at one point or another as far as could be examined, and it is certain that a considerable percentage of the original strength of the cable is gone. How much of it may remain unimpaired it is impossible to determine, but I believe that not more than two-thirds at the utmost of its original strength is left.

In this bridge, as it stands, I do not consider the back stays of much, if any, value. In order to be effective it is necessary to have the lower ends of the stays at opposite ends of the bridge well tied together, and when such is the condition they will support a considerable part of the load, affording corresponding relief to the cables. Such might have been the condition when the bridge was first built, but now it is so racked and worn that there is no part of it which can form an efficient tie between the back stays, and nearly, if not quite, all the load is necessarily borne by the cables alone.

I find that the bridge is subject to a traffic which is very heavy both in character and amount, and is increasingly so. It is not uncommon for ten or a dozen teams to be on the bridge at once, with possibly an electric car and many pedestrians in addition. Such a condition was not anticipated when this bridge was built and the fact that it has up to this time carried such loads in safety, even in its present weakened and dilapidated state, is good evidence of its original excellence.

In view of the foregoing, I find that the factor of safety in this bridge is alarmingly small and recommend that it be closed to wagon and car traffic for the future. It will still be safe for pedestrians under ordinary conditions of such use, but would probably fall if a large crowd of people were to assemble upon it. I therefore recommend that strict measures be taken to prevent it from being subjected to any such strain.

The Lake Shore Pile-Driver Car with Composite Underframe.

The engravings show a pile-driver car of 150,000 lbs capacity lately built by the Lake Shore & Michigan Southern Railway Co. Concerning this Mr. A. M. Waitt, General Master Car Builder, writes: "In accordance with your request I send you blue prints showing general design of the pile-driver car body recently designed for use on our road. You will see this car is unusually long, and in order to understand why it is made so heavy I would explain that the load is very nearly a constant one, amounting to 50,000 lbs., carried within a circle with a radius of 5 ft., the center of the circle being the center of

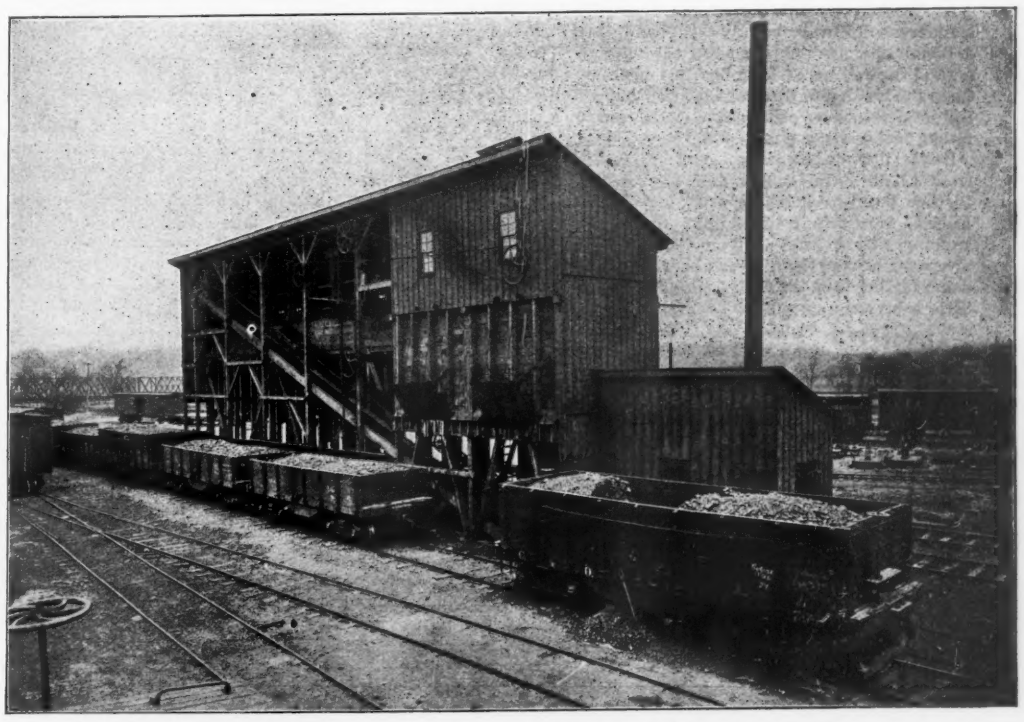
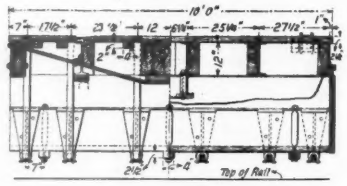


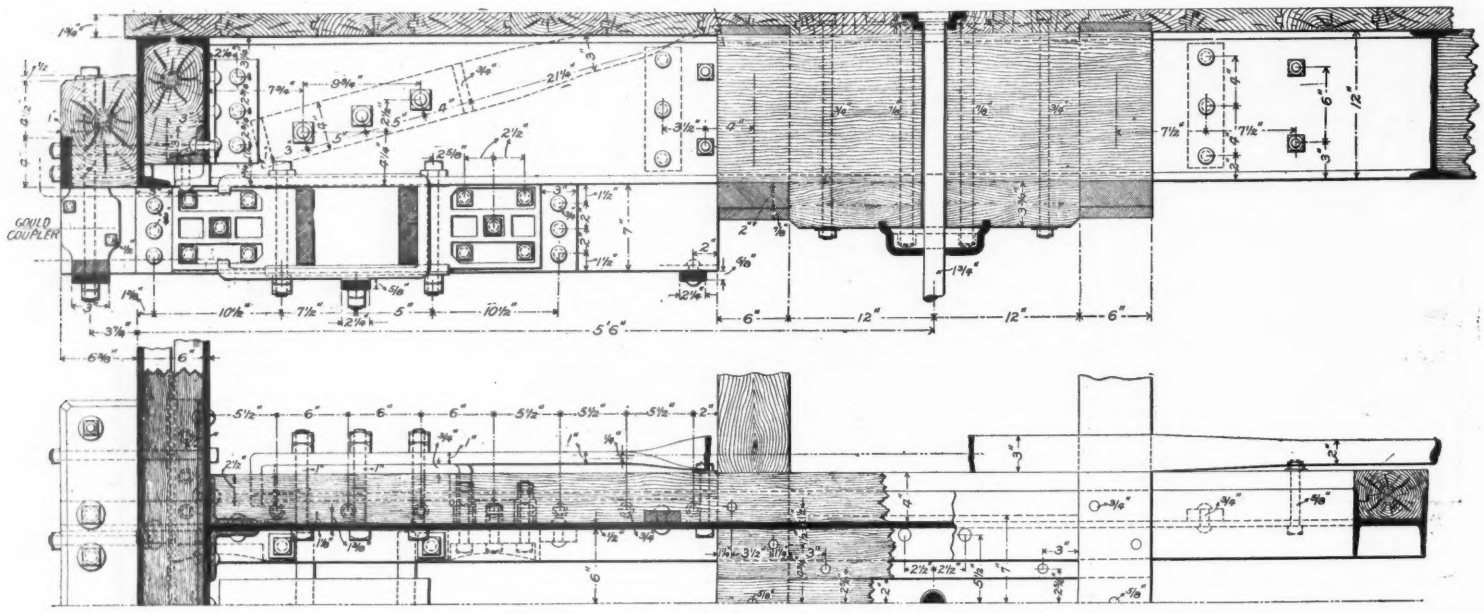
Fig. 2.—Rear View—Wabash Coaling Station.

the car body. At times almost this entire load is on one-half of the car. Beside the direct load there is a continual vibratory strain, due to the action of the pile-driver. The car being unusually long, 43 ft., and having under the center, in addition to the pile-driver outfit, a large tool-box filled with heavy tools, the car was designed to be strong enough to carry an equally-distributed load over its surface of 150,000 lbs. The trucks, of course, are calculated merely for 60,000 lbs. load.

"The use of wooden floor timbers, in addition to the channels and eye beams, was for the purpose not only f providing a simple means of fastening the floor, but also to assist in providing a simple means for attaching to the supports for the rollers for the pile-driver. If I were to design the car again I should only use timbers 4 in. deep for fastening the floors, instead of the entire depth of the eye beams. There are, in fact, several changes in the design that experience with this car has suggested, although I think it is well adapted for the purpose for which it is to be used."



Cross Sections of Pile Driver Car.



Draw Gear of Pile-Driver Car—Lake Shore & Michigan Southern Ry.

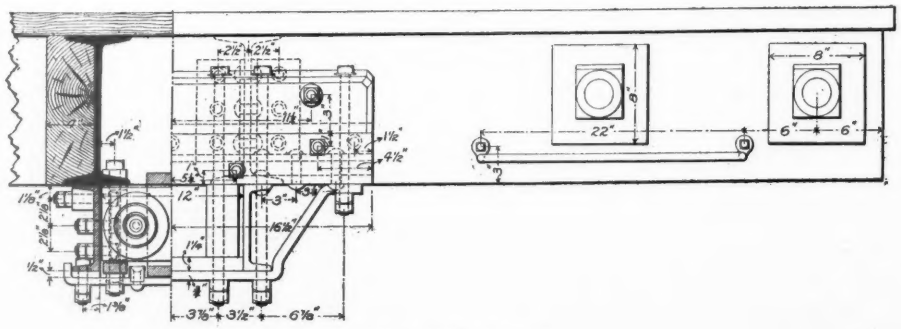
Jubilee of the London & North Western Railway.

The London & North Western yesterday completed the fiftieth year of its existence, and a short sketch of its rise and progress may be of interest to its numerous friends and admirers on the western side of the Atlantic.

Although just half a century old under its present title the line has formed part of the communication between London and Liverpool for nearer 60 years than 50. It is in reality an amalgamation of three lines, of which the London & Birmingham was opened partially in 1837, and completely on Sept. 17, 1838; the Grand Junction, from Birmingham to a point on the old Liverpool & Manchester Railway, on July 4, 1837; and the Manchester & Birmingham (which was never more than a Manchester and Crewe line of 31 miles in length) in 1840. Of these the London & Birmingham was laid out chiefly by Robert Stephenson, although with the assistance of his father in the earlier stages of the work.

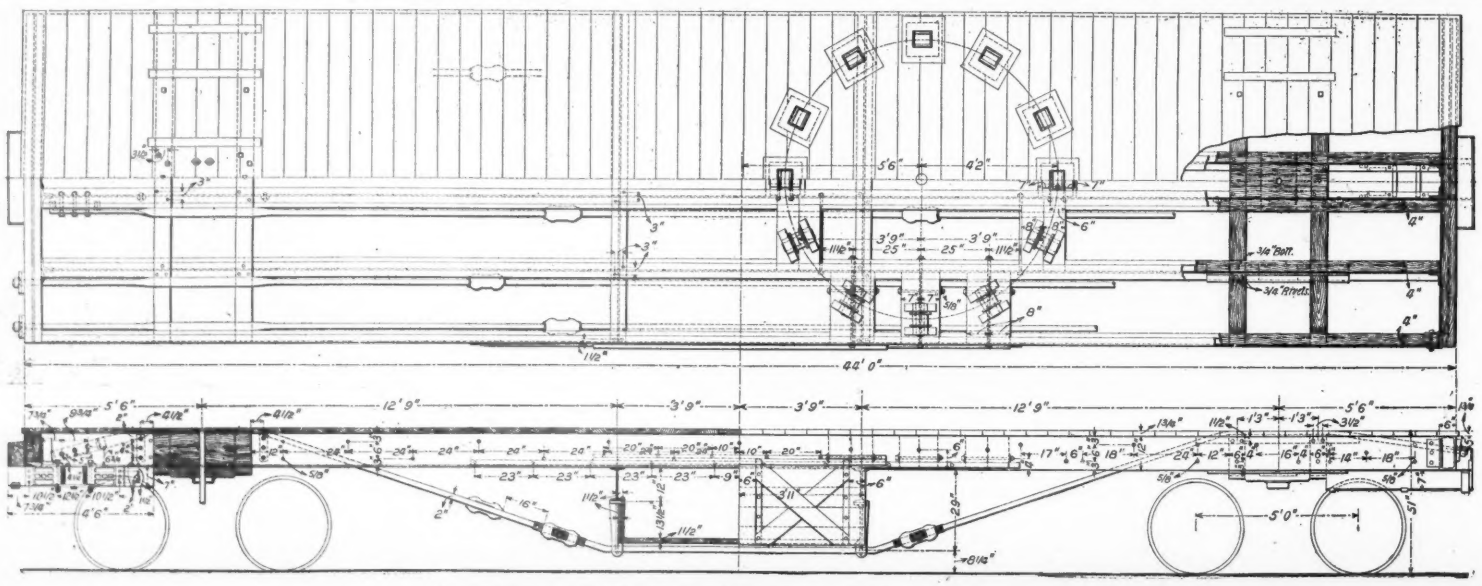
It was intended at first to start, not from Euston but from Chalk Farm or Camden Town, about 1½ miles further out, in a neighborhood where fields and market gardens were only just beginning to yield before the advancing tide of bricks and mortar which has long ago swept far beyond them. It was soon found necessary to come further into London; hence the Euston extension. This comprises a gradient averaging 1 in 85, but at 1 in 66 part of the way, for ¾ mile, and as the aristocratic and exclusive residents near it could not tolerate the idea of locomotives hissing and puffing past their windows, it had to be worked by two stationary engines with endless ropes passing round horizontal wheels placed just outside Euston station at the foot of the incline. Four lines of rail were laid, the whole arrangement being duplicated for the case of a break-down. On at least one occasion the massive hempen rope, 2¼ miles long, 7 in. in circumference and weighing nearly 12 tons, snapped in two, and one portion, flying back, dashed out the brains of a passenger. This mode of working was given up in 1847, when the new company made extensive alterations and enlargements at Euston.

With the exception of the new western portion, opened only three or four years ago, and constituting a very fine station of itself, most of Euston dates from 1847-9. The splendid hall in the interior, with the statue of George Stephenson, is of this date, the great Doric gateway outside, with three little square lodges in line with it, being the only remains of the original station "at Euston Grove, near Euston Square," of 1837. This ridiculous gateway is of the hardest Yorkshire stone and cost no less than $35,000. Money was poured out like pump-water in the construction of the London & Birmingham Railway. Estimated to cost £2,500,000 sterling, it cost £5,750,000 for 112½ miles of line. This included the Euston extension, which the smaller sum did not, and and an expensive deviation through the Kilsby Tunnel. The latter alone cost £300,000, though not more than 2,400 yards in length, but Robert Stephenson would have no gradient (except the Euston one), worse than one in 330 on a line which goes almost entirely through undulating country.



Draw Gear of Pile Driver Car.

The Grand Junction was built by Joseph Locke, a pupil of George Stephenson, and possibly a greater engineer than either his master or Robert Stephenson. Locke believed in the climbing power of the locomotive when no one else in England did, and, by adapting his lines better to the surface of the country, made them far more cheaply than any one else did and just as substantially. The London & South Western Railway, from London to Southampton, is by him; it cost only £28,000 per mile, and the Grand Junction but £22,000. This latter line amalgamated with the old Liverpool & Manchester line of 1830, and with a line from it to Preston in 1845, thus bringing all these into the joint concern established on July 16, 1846, as the London & North West-



General Plan of Pile-Driver Car—Lake Shore & Michigan Southern Ry

ern Railway. By absorbing later on the Lancaster & Carlisle line, 70 miles in length, and the Chester & Holyhead, 85 miles, the London & North Western obtained a monopoly of the London and Ireland traffic and a great share of the Scotch, and, in fact, was virtually put on its present footing.

At the time of its incorporation in 1846 the united system comprised 404 miles of line, with a nominal capital of £17,242,310. Not quite all this was then paid up. Powers to borrow one-third more, or £5,747,000, were also obtained. On the original main lines of the three companies composing the great triple alliance the London & Birmingham had 70½ miles laid with stone block sleepers (mostly placed corner-wise to each other) and 42 miles of cross-sleepers; the Grand Junction, 62¼ miles blocks, 20 miles sleepers and ½ mile on viaducts of longitudinal timbers. The Manchester & Birmingham had no blocks, 28½ miles of cross sleepers and 2¼ of longitudinals.

Down to the time of the amalgamation the London & Birmingham was worked exclusively by Edward Bury's four-wheeled engines, with inside cylinders generally 13 in. × 18 in., the passenger engines having single drivers 5 ft. 6 in. diameter, the goods engines two pairs of 5-ft. wheels coupled. All had circular fireboxes with a copper dome shaped upper portion; they weighed full from 10 to 12 tons, and cost £1,200 to £1,500 apiece. Bar frames inside the wheels were an invariable part of Bury's engines, although long fallen into disuse in England. Many of these engines were sent to America in the thirties, and at one time there were few British lines which had not at least a few of them.

The London & North Western has been continually extended till, at the end of 1894, it comprised 1,892 miles, of which 381 were single line. It carried in that year 68,052,458 passengers, while the journeys made by over a quarter million of holders of season tickets and workmen's weekly tickets would come to several millions more. There is one longer line in England (the Great Western) and plenty elsewhere, but none with 120 millions sterling of capital or the 12 millions of annual receipts that the London & North Western can boast of. It has 2,800 engines, all built at Crewe, more than 100 of which are on Webb's compound system with three cylinders. It possesses the largest driving wheels in the world under its old engine "Cornwall," built at Crewe in 1847, with its boiler under the driving axle, shown in the Exhibition of 1851 and rebuilt in its present form in 1863. The "Cornwall" had eight wheels originally, the first pair of leaders having been removed. It has cylinders 17½ × 24 in., driving wheels 8 ft. 6 in., and weighs full nearly 30 tons. It is the only one of its class, and is shortly to be set aside as a relic of old days.*

About 41½ million miles were run on the North Western in 1894, of which 20 millions were with goods and coal trains. The carrying stock comprised 5,351 coaches, 2,520 other vehicles run in passenger trains, 58,834 goods and coal wagons, 4,487 miscellaneous, chiefly ballast wagons. More than 60,000 men are employed. The £100 stock is worth £200 to-day and the credit of the line is as good as that of the British Government, which is saying a good deal.

LONDON, July 1. W. B. PALEY.

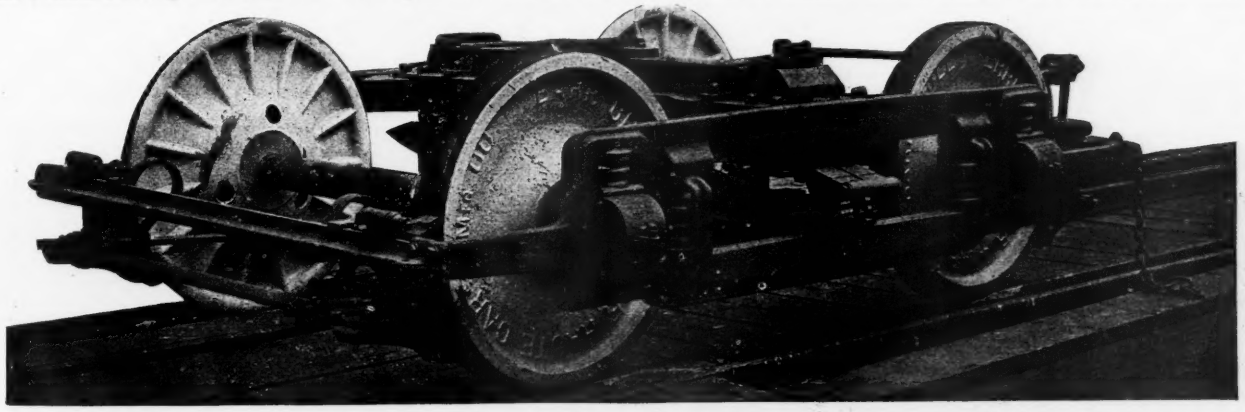


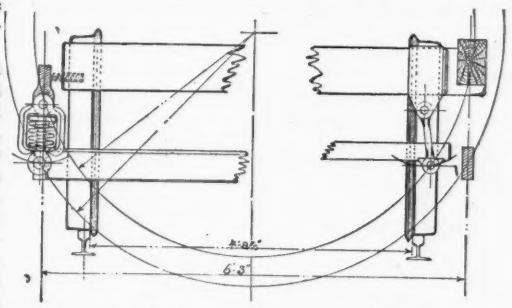
Fig. 1.—New Truck of the J. G. Brill Company.

*Two engravings of the "Cornwall" were given in our issue of March 23, 1894. In that issue appeared also an engraving of a Bristol and Exeter engine with 9-ft. drivers built in 1853. This road is a part of the Great Western, and the last of the 9-ft. drivers went out of service four years ago when the change of gage was completed. Probably, therefore, Mr. Paley is right in saying that 8 ft. 6 in. is the biggest driver now in use.—EDITOR.

The New Truck of the J. G. Brill Company.

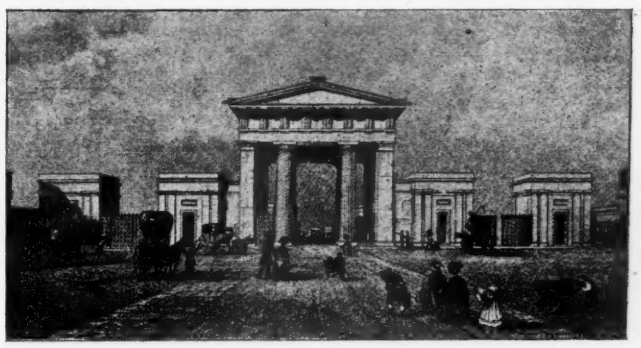
The J. G. Brill Company, of Philadelphia, are placing upon the market a new passenger car truck, the advantages and novel features of which are given in the following description which they have kindly sent to us:

It may be characterized as one with a wrought iron frame, having jaws forged on, with solid extension pieces, T-iron end pieces, angle iron jaw-straps and angle iron transoms with the spring plank formed of two Z-pieces filled with wood. The equalizers are a part of the spring plank, carry the swing bolster, and take their load in the center; they are in turn carried by links and move with the swing motion. Eight-inch journal box springs, nest spirals in the links, and quadruplet or triplet elliptics on the equalizer and spring plank furnish the vertical elasticity.



New Style. *Old Style.*

Fig. 3.



Entrance to Euston Station, London & North Western Railway—As Built 1837.

(The station offices now form a quadrangle higher than the portal, which is 72 ft. high.)

The form and peculiarities of the truck frame are shown in Fig. 2, and in the half-tone engraving, Fig. 1. For passenger work the frame is a forging, the wheel pieces being of a form somewhat like that which is so effective in locomotive practice. To a bar of ample stiffness jaws are forged at the proper points. From the outermost jaw at each end, extension pieces are carried, to which T-iron end pieces are bolted. On the wheel pieces between the jaws, and as close to them as may be practicable, suitable lugs are forged for carrying the spring links. Upon the inside of these wheel pieces, when made of steel castings, as is our practice for electric service, brackets are cast to take the angle iron transoms; when the frame is forged, corner brackets are used. For passenger service this frame is completed by iron safety beams and angle-iron tierods for connecting the jaws.

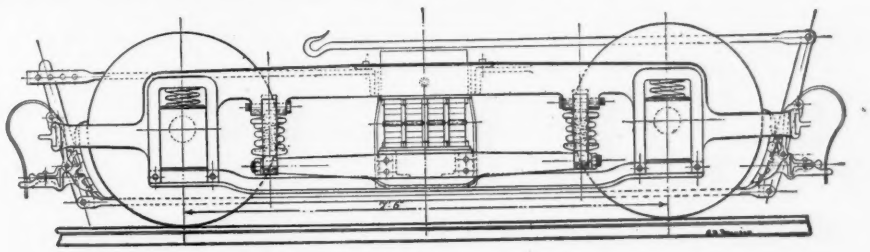


Fig. 2.—Side Elevation

The strains upon the truck frame for a given weight of car and load are less than in the ordinary construction. The swing links come close to the pedestals, relieving the wheel pieces from a large part of the strain which comes upon them when the load is carried by the transoms.

Fig. 3 shows the ordinary swing motion as compared with that of the new Brill truck.

The old style is shown on the right, and that of the new truck on the left. In both cases the center plate is taken as the center of motion and support—the circles representing the lines of motion. With the old style of link the radius of motion is that of the inner circle. The radius of the outer circle is obtained by placing the hangers outside the wheels as shown. The motion, of course, will be slower in proportion to the greater radius and correspondingly easier.

The equalizers are straight, forged bars, carried by spring links, or stirrups, upon their ends. At the centers they are solidly connected with the spring plank. The equalizer, spring plank and swing bolster move together in the side motion.

Fig. 4 shows the construction of the new spring link. It consists of a cast-steel stirrup, in which there is space for an 8-in. spiral. A follower is placed on top of the spring, and an eyebolt is screwed into it. The eye takes the end of the equalizing bar, which prevents the bolt unscrewing.

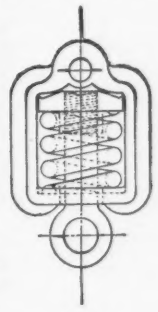


Fig 4.

The spring links perform all the functions of the common swing link, and also cushion the side motion. These springs are double action spirals of the draw-and-recoil type. Their location is shown in Fig. 3.

There are three sets of springs in the trucks. To use an electric term, they are placed in series. The weight rests on each set.

There are double journal springs resting on the tops of the boxes. They also cushion the rapid motion of the truck frame before it reaches the equalizer. Next above this in the order of load-carrying come the springs in the links and finally the elliptics.

The danger of jumping the track on curves is practically eliminated, because the springs of the swinging links yield and prevent the blow when the bolster strikes the wheel piece. The first trial of this type of trucks was made on an interurban electric railroad, of 25 miles length, where, in spite of very narrow treads, and shallow flanges, and curves with 35 ft. radius, its adherence to the rails was very perfect.

The construction and hanging of the brake is such that there is no lifting and thumping when the brakes are applied—a feature which adds greatly to the comfort of the passengers.

The Baltimore & Washington Electric Railroad.

Active operations on the Columbia & Maryland Electric Railroad began in the summer of 1895. From that time work has been carried on with but few interruptions. The first feature of interest on the line of the road beyond Baltimore is the long wood and iron deck bridge over Gwynns Falls. This is a highway bridge several hundred feet in length, and the work of renewing the woodwork of the upper chord and of strengthening it so as to support the weight of the trains has been difficult, and the more so since it was necessary to leave half of the bridge open for traffic along Edmondson avenue, while work was continued at the other half. This work is not yet finished.

From this bridge to a point beyond Catonsville there is a continuous line of track that is now operated by steam locomotives, which are used in hauling ties, rails and ballast to points along the line. The ballast is all crushed stone, a stone crusher being kept in continuous operation, to supply ballast for the track as well as crushed stone for macadamizing Edmondson avenue. This road, which has heretofore been a dirt road, will be put in good order by the railroad company.

The roadbed is as heavily built as those of standard steam roads. The rails are especially heavy, the

ties large and spaced closely, and the ballast of the best. The elevation of the outer rail, on curves, is great in order to provide for the high speeds at which it is proposed to run. One of the sharpest curves, that at a point on Edmondson avenue, about four miles from the city, where the road takes a sharp turn to the southwest, was recently replaced by a cut-off. This cut-off, about 1,200 ft. in length, was built in part through the land of a property owner opposed to the construction of the road. In order to prevent his obtaining an injunction against the completion of this cut-off it was largely built during a single night by a force of 800 men.

Laying of track has also been begun upon the Washington end of the road, between Washington and Laurel. The work on the Hyattsville power-house is progressing rapidly.

It is claimed that the first section, between Baltimore and Ellicott City, will be completed by August 1, but a careful inspection of the present condition of the road does not indicate that this will be accomplished.

Another feature of interest regarding this road is its recent purchase of the Catonsville Short Line, a steam road between Baltimore and Catonsville, operated by the Baltimore & Potomac Railroad. This road, it is said, will soon be changed from a steam to an electric road, the route from the present junction of this road and the Baltimore & Potomac into the city to be via Schroeder, Pratt, Stricker, Ramsay and Young streets, and through private property along Gwynns Falls, about 3,200 ft., to the junction. The completion of this connection, an ordinance for which was recently introduced in the City Council, will give the Columbian & Maryland two direct lines to Catonsville. The present steam route is about one mile shorter than the Edmondson avenue route and its grades are easier and fewer. Greater speed could also be made upon it, since it is largely through private propery. Just how the two routes will be operated in conjunction is not now known.

Additional information may be found in an article entitled "The Baltimore & Washington Electric Railroad," in the *Railroad Gazette* of April 24, 1896, and in the Electric Construction Notes of May 8 and July 3 and 10 of this year.

Fig. 1.—Drop-Side Gondola Steel Car.

Some of the Latest Steel Cars.

In the *Railroad Gazette* of June 12 there appeared a description of several steel flat cars built by the Universal Construction Company, of Chicago, Ill. In this issue are shown engravings of three new steel cars just finished by the same company.

Fig. 1 is a drop-side gondola car wholly of metal, especially designed for the coal and crushed stone trade, while Fig. 2 is a high side gondola car. The only difference between these two cars is above the floor line, one having drop doors in the side and the other not. Fig. 3 shows the under side of the cars shown in Figs. 1 and 2.

These cars are built of selected steel plates of high ductility ¼-in. thick, formed cold into channels by means of the Pennock rolling machine, which channels make the sills and the floor integral parts, the one of the other. The length over end sills is 34 ft. 1 in., the width over side sills 8 ft. 6 in., while the width over stake pockets is 9 ft. 2⅛ in.

By this form of construction, the draft rigging is attached directly to the center sills by malleable castings and rivets. It will be noted that a portion of the flange of the steel I-beams, which form the base of the center sill, is cut away to receive part of the concussion through the draft rigging directly upon these beam flanges. In the height of coupler and other particulars, this car conforms to the requirements of the Master Car Builders' Association. The Tower coupler is used on these cars. For the better preservation of the metal, the focus of the steel flanges are treated with oil or paint before riveting and bolting together.

The needle beams are made of rolled steel beams, 6 in. in depth, and weigh 12¼ lbs. per ft. The steel plate used in the body bolster is 10 in. wide by 1 in. thick, while the steel plate forming the end sill is $\frac{5}{16}$ in. thick. The side sills with stiffening plates and angles have a total depth of 18¼ in. between the needle beams, and are of themselves of sufficient strength to carry a much greater load than would probably ever be imposed upon such a car. Without the sides, the cars shown in Figs. 1 and 2, weighs 25,860 lbs., the trucks alone weighing 12,600 lbs.

Special trucks have been constructed for these cars, calculated for a minimum capacity of 80,000 lbs. The axles are made from Illinois Steel Company's open hearth steel and weigh 550 lbs. each, the journal being 4¾ in. × 8 in. The wheels weigh 650 lbs. each. The Westinghouse Automatic air brake is used on all cars.

Fig. 4 shows a new steel hopper car for hauling ore and coal. The same trucks, axles and wheels as used under the gondola cars, have been used under this hopper car. The weight of the hopper car is 25,860 lbs., the trucks weighing 12,600 lbs. The same principles are carried out in the construction of this hopper car, as in the gondola car.

The Universal Construction Company is now making a design for a metal refrigerator car, which it hopes to have completed in the near future.

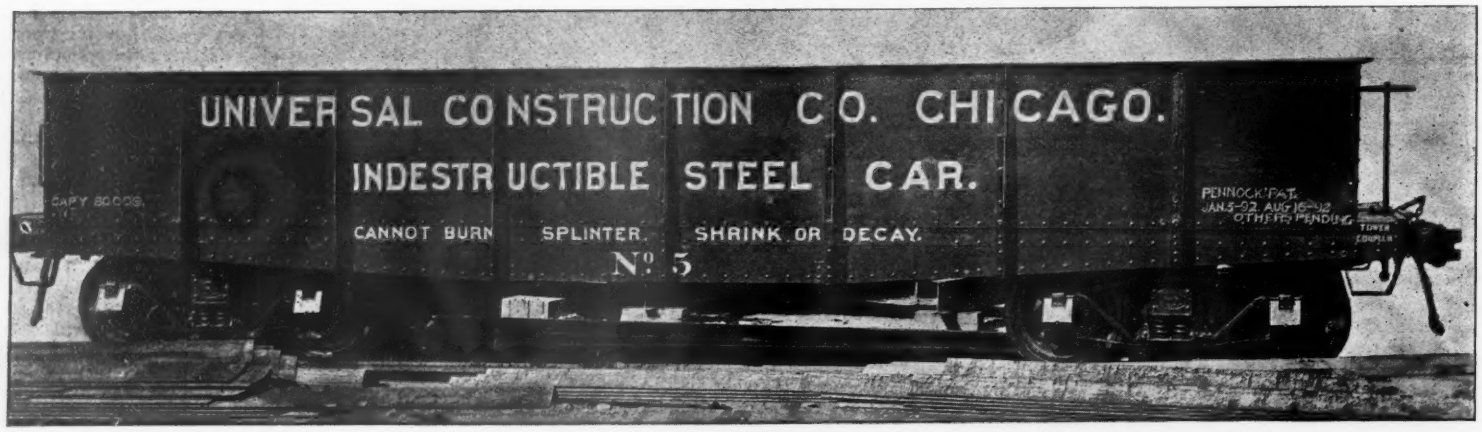


Fig. 2.—High Side Gondola Steel Car.

Railroad Matters in England.

Public Opinion on Railroad Questions.—Notwithstanding the efforts that the railway companies are making to help the farmer to get his produce to market, still he is evidently far from satisfied. Here is a curious proof. An enterprising gentleman recently sent a circular letter to upward of a hundred thousand British farmers, asking for their views on the question of agricultural depression and the various suggestions which have from time to time been made for mitigating or removing it. The bulk of the replies of course deal with agricultural questions proper, but it appears from the analysis that has been published that nearly half the farmers replying wish to see the railways of the country taken over by the state. Only 9 per cent. are content with the existing railway rates, 17 per cent. ask that railway tariffs shall give a preference to English over foreign produce.

It can hardly be supposed that the English farmers have made any special study of the question of state *versus* private railways, still less that their plebiscite represents the balance of average opinion in this country. Here, on the other hand, is a document recently published by the Chamber of Commerce of Glasgow, the second city in Great Britain. It seems to me so important and interesting that I give it in full. I must, however say that I doubt whether so flattering a testimonial to our railway system would have been signed by any other important Chamber of Commerce in the country. The questions, I may say, to which the Glasgow Chamber of Commerce answers are given were asked on behalf of the Railway Section of the Economic School in the University of Wisconsin.

Question 1. Do competing railways enter into agreements, such as are commonly known in this country as "pools," for the division of freight earnings, or of tonnage carried between competitive points, and, if either, which?

Answer. British railway companies frequently enter into agreements for "pooling" the receipts of passenger as well as merchandise traffic. These "pools," commonly known in Great Britain as "Joint Purse Arrangements," are entered into by private agreement between the companies, and control competitive traffic between given points, or between certain areas, or between, it may be, certain large towns in England and large towns in Scotland.

It is not the practice to pool the "tonnage," the "earnings" being the generally adopted basis for pooling traffic.

Question 2. If such agreements exist, are they legal and enforcible as other contracts?

Answer. Such agreements are considered binding upon the railway companies entering into them; but it is difficult to state their precise legality, as hitherto there has been no attempt by any of the companies concerned to get rid of the obligations thus entered into.

Question 3. Do such agreements entail [? the discontinuance of] competition to the disadvantage of the shipper?

Answer. Such agreements are not considered to be to the disadvantage of traders, although they may effect a reduction in their expenses to the railway companies concerned.

Question 4. Is there any feeling among shippers that a more active competition, such as exists in the United States, would have resulted in lower rates, or better service, than at present obtain?

Answer. We are not aware of any such feeling in this country.

Question 5. Have rates fallen very considerably during the past 20 years, and, if so, can you give any estimate of the amount of such fall?

Answer. The tendency during the past 20 years has been toward reduction of railway rates and fares.

It is difficult to give an estimate of the amount of the reduction. It has been stated as ranging from 5 to 40 per cent.

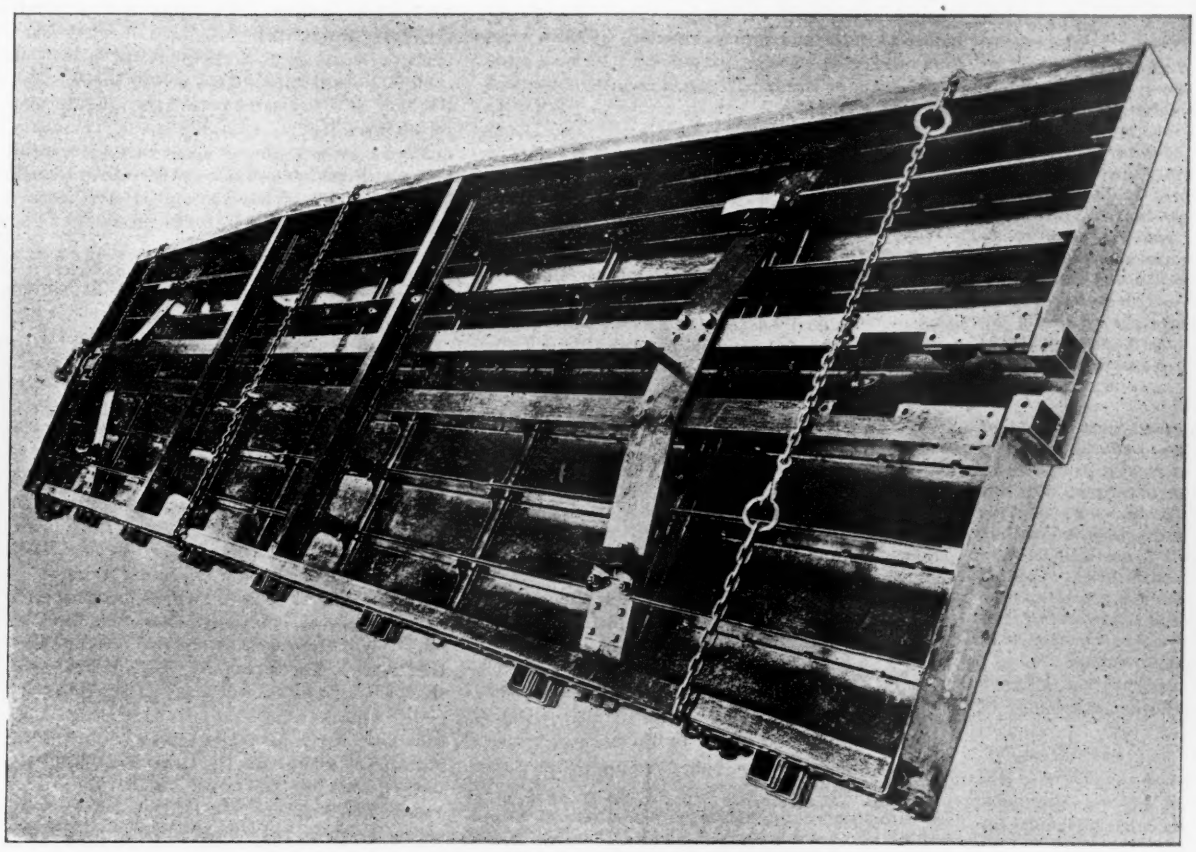


Fig. 3.—Under Side of Cars Shown in Figs. 1 and 2.

A considerable disturbance has taken place in rates under the Railway Rates and Charges Order Confirmation Acts of 1891 and 1892, which affect all the railway companies and traders in the United Kingdom.

Question 6. Is there any dissatisfaction with the accommodation furnished the public by the railways?

Answer. No dissatisfaction is expressed as regards the accommodation furnished to the public by railways.

Question 7. Can large shippers obtain rates, less than the published rate, by means of rebates, underbilling or better service—such as furnishing cars more promptly—or by other devices? In other words, are discriminations practiced, either between persons or localities?

Answer. The Railway Rates and Charges, etc., Acts have the effect of preventing any preferential rates being given, so that, for equal traffic and equal services, the rates charged are the same.

Contracts are entered into by railway companies at reduced rates with such parties as coal-mine owners, etc., who supply their own wagons, but if any undue advantage is given by railway companies recourse can be had for redress by parties aggrieved to the Railway Commissioners, who are appointed to deal therewith.

Question 8. Has the English Railway Commission succeeded in protecting the public? Are proceedings before it cheap, rapid and effective?

Answer. The English Railway Commission is considered a fairly satisfactory tribunal by railway companies as well as by traders. Its proceedings are effective, rapid and moderately inexpensive.

Collection of Passengers' Luggage in Advance.—I promised last month to say something as to the systems in force here for the conveyance, in advance of the passengers themselves, of the luggage, of families leaving London for the holidays. The system in existence on the Great Eastern may be taken as a specimen of the arrangements hitherto adopted. This company undertakes to collect luggage by its own carts in London, to carry it to the pleasure resorts on its own system, and there to deliver it at the address given for a charge of 1s. for any weight up to 96 lbs. and 1d. for every additional 8 lbs. Similar arrangements are in force for the return journey. The maximum distance to which this scale of charges applies may be said to be roughly 150 miles. The Great Eastern authorities are of opinion that this system has led to considerable abuse that in not a few cases the luggage is sent in this manner by train, while the families themselves travel to their destination by steamer and not by the railway at all.

The system introduced this summer by the South Eastern Company is designed to meet as far as possible this difficulty. The South Eastern charge is a fixed sum of 1s. per package whatever be the size. But in addition the sender of the luggage is called upon to pay a deposit of 2s. for each member of the family proposing to travel. A voucher for this sum will be given by the carman who collects the luggage and subsequently accepted at the station booking office as part payment for the tickets. The carman will be expected to see that the number of tickets for which a deposit is paid corresponds roughly to the amount of luggage forwarded, but no attempt will be made to limit passengers to the precise amount of luggage which they are legally entitled to carry. The South Eastern officials calculate that, having secured 1s. per package *plus* the 2s. deposit, they will not be actually out of pocket, even if the senders subsequently think fit to betake themselves to their destination either by steamer or by a rival railway route. Luggage is required to be handed to the company at least twenty-four hours in advance. I ought to add that this system is in force without extra charge not only in London proper but over a wide area extending some 12 or 15 miles in each direction from the company's terminus at Charing Cross.

W. M. ACWORTH.

Uniformity in Car Construction.

(From the Noon Hour Discussions at the Master Car Builders' Association.)

Topic No. 11 was: "Is it desirable to have greater uniformity in car construction? If so, are there other parts of freight cars that could be wisely standardized? What parts is it most desirable to so standardize?"

Mr. R. H. SOULE: We already have standards pertaining to body construction, journal box and contained parts in two sizes, with the prospect before us of a third, also an axle in two sizes, standard wheel tread and flange, standard measurements for mounting wheels on axles, standard brakehead and shoe, certain standard features of the brakebeam, and the arrangement of air-brake gear and details. As pertaining to body construction, we have certain standards pertaining to the coupler, including contour, length, etc., and under the code of recommended practice we have as affecting the body certain arrangements of the buffer blocks and their location.

In my judgment it would be a great convenience in interchange, and also in clearing up after wrecks, if we could establish standard distances between side bearings for the truck, and necessarily for the body; a standard distance or height from the top of the rail to the side bearings. Similarily the center plates seem to be a place for introducing certain standard dimensions, which should be limited to the diameter and depth of the projection on the top center plate, and the diameter and depth of the pocket on the lower center plate. The greater use of steel underframes has been very distinctly foreshadowed; and, I think, at the proper time it will be of great importance that we should adopt what may be called a schedule of members for steel underframes, which would simply comprise certain standard sections and certain lengths for the sections; not necessarily giving each section but one length, but giving a choice of lengths, to suit different designs and stop there, limiting these standards to what you might call structural shapes; but giving the designers as much latitude as possible, and not confining them to any standard sections which are not structural, but leaving the matter open as to the use of any sections in the form of bars and plates. That is made much easier for us now because only recently the Association of American Manufacturers, who are engaged in the manufacture of structural shapes, have got together and have agreed to limit their manufactures to certain agreed sections; all of which has been published in pamphlet form.

Mr. PECK: The most important thing is the draft rigging. There should be a standard lug, so that when you put a lug in a car it will go to San Francisco. We have more trouble in that respect than any other, and it would be an easy thing to establish a lug satisfactory to the association.

Mr. HENNESSY: We should establish standard sizes in archbars. It would be greatly to the advantage of car builders: some roads use archbars 4 × ⅜, 4 × 1, 4 × 1⅛.

Topic No. 12 was: "Can the relations between the M. C. B. rules and the M. C. B. standards be made more close, and cannot the M. C. B. rules be used as an incentive to more extensive introduction of the recognized standards and recommended practice?"

Mr. WAITT: In our M. C. B. rules one of the important M. C. B. standards has been recognized and given especial prominence—the coupler. In the rules we so encourage the use of the M. C. B. coupler, and we did before the law requiring its use was passed, as to make it for the interest of companies to a certain extent to use it, and we discourage the use of the common coupler, by permitting the use of a substitute of any kind, provided it has the necessary strength and dimensions for the service intended.

It has been suggested that an M. C. B. coupler alone ought not to be given this prominence, but that we ought, by permitting the use of M. C. B. standards to a greater extent than we now do by our rules, encourage their use. Make it an object to use M. C. B. standards rather than some odd arrangement, by not allowing any claim for the substitution of some odd local standard. Some gentlemen do not like the M. C. B. standard journal bearing. They use something that our inspectors are not familiar with. A journal bearing gives out, and they apply another. We ought to encourage the use of

C.L.S. & E.R.Y.
BUILT BY THE UNIVERSAL CONSTRUCTION CO. CHICAGO.
BUILDERS OF PENNOCK'S INDESTRUCTIBLE STEEL CARS.
CAP'Y. 80,000
WT. 26,630
CANNOT BURN, SPLINTER, SHRINK OR DECAY.

Fig. 4.—Steel Hopper Car.

standards by saying that when the bearing, which carries the car home, is received by the owner he may make no claim if the M. C. B. standard journal bearing was used; but if an odd bearing was used, he could make a claim. If the same idea is carried out with other standards, giving an advantage to roads which adhere to M. C. standards, we would have a larger adoption of them.

(Continued on page 508.)

RAILROAD GAZETTE

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EDITORIAL ANNOUNCEMENTS.

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies in their management, particulars as to the business of the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.*

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting, and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers, can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.*

Mr. Salem H. Wales, one of the commissioners of the new East River Bridge, New York, has aroused himself and the Commission and has attempted, through the daily papers, to arouse the public to the fact that there is such a thing as combining noble proportions and beautiful details with adequate engineering in the design of the new East River Bridge. Surely the commissioner could do the city no better service than to make this bridge a monument of good architecture as well as good engineering. That was one of the ends which we had in view in forwarding the straight-line plan with broad plazas at the ends, which idea, fortunately, seems to have prevailed. The commissioner was perhaps a little unfortunate in the case which he chose as a horrible example, namely, the Washington bridge across the Harlem River. He says "beautiful as the bridge is in its ensemble the details are considered by many artists most unfortunate. They are ugly and in every way unskillful from the architectural point of view." He might have called attention to a far more painful case. The existing Brooklyn Bridge is one of the most beautiful things in the world as seen from the Harbor, but as seen end on it is ugly and almost squalid. If Mr. Wales wants to stimulate the imaginations of his brother commissioners he cannot do better than to take them to City Hall Park, and show them this melancholy example of how mean a splendid thing can be made to look. We wish him complete success in his effort to get his fellow-commissioners to consent to the co-operation of a first-class architect with their able and faithful engineer.

The First Duty of the Day.

"*David . . . escaped to the cave of Adullam . . . and every one that was distressed and every one that was in debt and every one that was discontented gathered themselves unto him.*"

The action of the Adullamites who lately masqueraded as the Democratic National Convention has made the path of duty perfectly straight and plain for every man who loves his country and for every sober citizen who has anything to lose; be it the savings of his industry and self-denial; be it his hope of future prosperity; be it that security in "life, liberty and the pursuit of happiness" for which his ancestors, and perhaps he himself, fought and suffered. That duty is to work and to vote for the election of William McKinley. We can say this with absolutely no political bias. In the small group of men who control the policy of the *Railroad Gazette* are Republicans, Democrats and Mugwumps, and no one of them abandons now the political principles that have guided him heretofore; but all are united, without hesitation or reservation, in hoping for and working for the success of the Republican ticket in this Presidential campaign.

In fact this is not a party contest; it is a contest for the preservation of the financial system of the nation; for the preservation of the nation's reputation for common business honesty, and for the safety of the social institutions under which we live. The Chicago platform and the Chicago nominee stand for the destruction of all these. The most conspicuous and immediate purpose of the Adullamites is to bring about free coinage of silver and to force the nation to silver monometallism, along with a few nations not yet civilized.

This they will fight for with great enthusiasm and unanimity. But they look forward to still more fatal changes in our national policy. These changes are indicated in the platform and in the speeches which found the greatestest acceptance at the Convention. Let us examine specifically the demands of the platform.

"We demand the free and unlimited coinage of both silver and gold at the present legal ratio of 16 to 1, without waiting for the aid or consent of any other nation. We demand that the standard silver dollar shall be a full legal tender, equally with gold, for all debts."

This, of course, means silver monometallism. No man who knows anything about the history of finance can doubt that. Gold would simply go out of the country and we should go to a silver basis, and all debts not specifically payable in gold would be payable in silver. Some of the leaders have already acknowledged openly that this is precisely what they are aiming at—to permit the debtor to pay his debts in debased currency, and this possibility seems to be one of the most attractive features of the movement, to many people.

"We favor such legislation as will prevent for the future the demonetization of any kind of legal tender money by private contract."

Schemers and theorists have tried this time and again, but have always failed. Setting aside all consideration of justice, and setting aside the moral objections to attempting by law to interfere with the right of contract, one great practical fact will forever prevent the successful working of a scheme to forbid a man to specify the kind of money in which he will be paid. If he cannot specify and collect, he will simply decline to make contracts.

"We are opposed to the policy and practice of surrendering to the holders of the obligations of the United States, the option reserved by law to the government, of redeeming such obligations in either silver coin or gold coin."

This means, of course, that if the makers of this platform can have their way, the United States government will pay its debts in a depreciated currency.

"We are opposed to the issuing of interest-bearing bonds of the United States in time of peace."

This forbids the use of the nation's credit in an emergency, and would lead to national bankruptcy whenever, through the foolishness of its governors, or through other misfortunes, the nation found its treasury empty.

"We are opposed to any agitation for further changes in our tariff laws except such as are necessary to meet the deficit caused by the adverse decision of the Supreme Court on the income tax. . . . We declare that it is the duty of Congress to use all the constitutional power which remains after that decision *or which may come from its reversal by the Court as it may hereafter be constituted*," etc.

Plainly, this indicates the purpose of the people who framed this platform to levy a discriminating income tax and it shows their willingness to pack the Supreme Court, if necessary, to that end. Contempt for the courts and willingness to corrupt or degrade them is the most dangerous condition of mind that a free people can drift into.

"We are in favor of the arbitration of differences between the employers engaged in Interstate Commerce and their employees, and recommend such legislation as is necessary to carry out this principle."

This is an impracticable dream of a few philanthropists and of many professional "friends of labor." Fortunately, it has so far been impossible to put it into the form of effective law, for it would be destructive of industrial enterprise.

"We demand the enlargement of the powers of the Interstate Commerce Commission and such restrictions and guarantees in the control of railroads as will protect the people from robbery and oppression."

This shows very plainly what the railroads would have to expect.

"We denounce arbitrary interference by Federal authorities in local affairs as a violation of the Constitution of the United States and a crime against free institutions, and we especially object to government by injunction."

Here is indicated the purpose to turn over the great communities to unrestrained riot. This clause of the platform is the protest of Altgeld and the other Anarchists against that courageous and judicious exercise of Federal authority which recently restrained them from stopping the commerce and business of the country, and probably restrained them from destroying a considerable part of the city of Chicago.

"We are opposed to life tenure in the public service. . . . We favor such an administration of the Civil Service laws as will afford equal opportunities to all citizens of ascertained fitness."

This is the familiar, tricky assault on the movement for the reform of the Civil Service, which reform will probably correct some of the most serious evils of our political system.

This platform is the most remarkable and the most dangerous expression of policy that has ever been made by any important body of men since our nation began. If this policy could prevail, it would not only destroy the credit of the nation, but it would destroy the free institutions under which we live. Of course it cannot prevail ultimately, but it would be disastrous to humanity if it could prevail in this nation, even for a short time. That is why we say that it is the duty of every patriot to fight the Chicago platform with all his might and main. We shall hope later to show how and why every owner of railroads, every railroad officer and every railroad employee, even the humblest, has a special interest in the overwhelming defeat of the Adullamites.

Gross Earnings for June and for Six Months.

Railroad gross earnings for June were a little better than had been expected, showing an increase of 8.29 per cent., or more than $2,400,000 over the same month in 1895, according to the reports of the *Financial Chronicle*. An improvement in traffic in the last week of the month accounts for much of the increase. The conditions in the month were not different from those of the previous three months, when the highest rate of increase was a little over four per cent., following upon increases of 11 per cent. and 13.5 per cent. in January and February.

The movement of grain, which has been large each month this year, continued heavy in June, and the relatively better earnings reported are due largely to this traffic. The reports of the Northwestern roads show this in a marked degree. In this group the Wisconsin Central is the only road reporting decreased earnings. Large increases are shown by the Chicago, Milwaukee & St. Paul, the Great Northern, the Canadian Pacific, the Northern Pacific, and the "Soo" road. The Southern roads, too, continue to show larger increases than most other groups, except the Grangers. While the cotton crop failure has caused a decrease in revenue from that traffic, the Southwestern roads have been more seriously affected than the more distinctively Southern lines. Moreover, the cotton traffic is generally about over by June, but this year the movement continued through that month, the receipts at Southern ports and shipments overland being large.

The earnings for the six months, of 120 roads, operating 95,600 miles increased over $15,268,000. Adding the returns of 88 roads for five months, the gross earnings of companies operating 153,000 miles were over 408 million dollars, an increase of 20 millions or 5.16 per cent. over the first half of 1895. In the latter year the comparison showed a gain of 12 million dollars or 3.23 per cent.; the earnings in 1894 showed the great loss of over 74 millions, 16.5 per cent.

As the year has advanced there has been a constantly diminishing volume of business, as the trade conditions have become more unsatisfactory. The heavy crops last year and the large grain traffic have helped some of the roads. The lines in the granger group have shown the largest increases each month, and the Pacific roads also have reported fair increases. The spring wheat carrying roads have gained handsomely, the Chicago, Milwaukee & St. Paul reporting for the six months an increase of over two millions, the Great Northern an increase of $1,448,000; the Canadian Pacific, $1,591,000; the Northern Pacific $712,000; the "Soo" line $562.000, and the Chicago & Northwestern $1,985,000 for five months. These are the largest increases reported, except a gain of $722,000 on the New York Central; of $1,292,000 on the Pennsylvania for five months, and of over $1,227,000 on the Norfolk & Western, which had a coal strike in 1895. The corn carrying roads have not gained proportionately from the large corn crop, because its movement has been restricted by the low prices, but the Burlington gained $695,000. The Southwestern roads generally report heavy decreases, the Texas & Pacific $244,000 and the St. Louis Southwestern $164,000. The Big Four has a decrease of $340,000 and the Philadelphia & Reading a loss of $900,000 for five months. The roads in the middle western states and in the eastern states, so far as reported, generally show losses, and their returns show the unsatisfactory conditions in the manufacturing states.

In examining the figures of movements of commodities we find an almost uniform increase. Thus, the shipments of eastbound freight from Chicago were about 1,840,000 tons to June 30, but the shipments of the second quarter were much less than in the first three months of the year. Grain receipts at Eastern seaboard points were 96 million bushels, an

increase of 41 million bushels, and receipts at Western primary markets increased 76 million bushels. The receipts of grain at Minneapolis and Duluth, the spring wheat centers, were especially heavy, while the winter wheat ports on Lake Erie report decreases in wheat and in other cereals. The cotton traffic fell off largely. Receipts at Southern outports were only 1,537,000 bales, a loss of over 705,000 bales; overland shipments were 235,000 bales less, a total decrease in the cotton movement of 940,000 bales. During the half year there have been no disturbing conditions to affect railroad revenue. There have been no rate troubles, no labor strikes, no storms seriously interfering with traffic, or doing damage requiring heavy renewal expenditures. The serious condition affecting revenues has been the disturbed state of business, which has been constantly growing worse.

Postage on "R. R. B." Letters.

The Postmaster-General has notified the railroads that he intends to enforce the long-standing law forbidding the transmission of letters or any written papers on railroad trains unless the same are inclosed in government stamped envelopes—that is, unless postage is paid upon them. The only exception in the law, as related to railroad service, is that way bills may be carried on the same train with the goods As most way bills are now sent by passenger trains to save time, this exception is of little value, and the practical effect of the enforcement of the law would be to impose upon all railroads a very heavy annual bill for postage. As a law forbidding a carrier to carry his own property at his own expense is unreasonable on its face, this statute has always been a dead letter; so much so, that the regulation of the Post-Office Department forbidding railroad employees to carry letters, makes an exception of "letters or packets relating to some article carried by the same railway car *or to the business of the railroad on which they are carried.*" The last dozen words, however, appear to have been added by some department official without the authority of any specific act of Congress, so the Postmaster-General is free to abrogate them whenever he shall see fit; and this is what he has now done.

There can be no question of the soundness of the principle that the Government, to give efficient mail service, must preserve its monopoly; for a fundamental part of the theory on which the service is established is that the populous sections of the country, where carrying letters is profitable, shall bear a portion of the burden of carrying them in the thinly settled districts where the cost per letter is greater. If competition were allowed it would deplete the Government revenues at the larger cities and leave it with such a burden that the rates of postage would have to be advanced. The adjustment of the laws protecting the post-office monopoly, is, however, a difficult matter and involves interminable hair-splitting by the officials. The nature of this hair-splitting is familiar to every one in the regulations for mailing newspapers and in the provisos and exceptions of the clauses relating to merchandise. The prohibitive laws have led to numerous suits in the courts and consequent judicial decisions, and these have necessitated alterations in the regulations of the Post-Office Department. The courts, in cases where the law is insufficient or ambiguous, endeavor to base their decisions upon common sense; this naturally suggests a similar course to the administrative officers who make the regulations of the department, and the fact may explain the exception of "R. R. B." letters above referred to.

Aside from the main object of promoting the easy communication of intelligence—and the term "intelligence" does not necessarily include a great deal of what is transmitted through the mails outside of one-ounce letters and a small portion of the newspapers and magazines—there is no important question of principle involved in excluding from or including in the mails any particular thing; the matter is to be decided almost entirely by expediency. Advertising sheets should not go at the same rate as legitimate newspapers because the advertiser sends too large a proportion of what is not true "intelligence." Merchandise must be rigidly limited because the postal principle of ignoring distance in making charges cannot rightfully be applied to articles of any considerable weight or bulk.

Recognizing the principles involved, and beyond that looking only to expediency, wherein is the post office or the public harmed by the transmission of railroad letters in the baggage car instead of in the mail car? The justice of the postal regulations is based on the assumption that the post office can carry every one's letters better than any other instrumentality can do the service; but this is not the case with the railroad officer. His trains are more frequent than mail trains, and his delivery generally quicker (on account of the saving in distance). The railroad agent often has occasion for annoyance at delays due to the use of the mails by some correspondent. Again, the post-office regulations permit any person to carry letters for another, if he does it without compensation; we cannot see but that this pretty nearly covers, in principle, the carrying of railroad letters by an employee of the road.

It seems to be understood in some quarters that the the thing aimed at by the Postmaster General's circular is the transmission of railroad letters over two or more railroads, a practice which is supposed to be carried on without much regard to what business the letter refers to. It is true that a "railroad mail exchange" such as exists in Chicago gives the appearance of an establishment intended to rival Uncle Sam's, and the general use of the term "train-mail" by railroad men helps to keep up the semblance of a competing post office, but we cannot imagine that more than an exceedingly small fraction of the letters carried by baggage men are on other than the legitimate business of the railroad over which they are carried. A letter from Portland, Me., to Portland, Or., presumably refers to some actual passenger or shipment of freight which has passed or will pass over precisely the same route, and the presumption is, we say, almost sure to be well-founded. If the railroad officer in Maine wishes to write to Oregon concerning some shipment that has gone around Cape Horn—that he desired to get, but didn't—the intermediate roads ought not to carry his letter; but the answer to that supposition is that probably he would not use the "train-mail" in such a case. Even if he did the fraud on the Government would be infinitesimal—about the same as that of a fly getting a free ride on the wheel of the President's phaeton at Buzzard's Bay. The carriage of a waybill, tracer, letter or receipt from New York to Chicago by the Erie road when the business to which it refers went over the Pennsylvania would theoretically be a violation by the Erie of the letter and the spirit of the law; but as railroad letters are written only when necessary and not just for fun, and as mis-routing of this character would occur as often on one road as another it is not apparent where the injustice would come in.

As we have already remarked, a railroad officer often makes an appreciable saving in time by sending a letter to another officer, or to one of his station agents, by the baggageman instead of sending it "up-town" to the post office half an hour before train time, only to incur a similar delay at the other end of the route. To send by mail in such a case is unnecessary and unreasonable, and the only thing to be said about a law making such a requirement is that it ought to be repealed. It would be equally fair to say that a telegraph or telephone superintendent should not communicate with his distant offices by wire on the company's own business. The railroad man who wishes to get the benefit of this saving of time for his personal letters ought, perhaps, to put such letters in government stamped envelopes; but to enforce such a requirement with equity would be a difficult matter.

The Custom House officers, who have to be on the lookout against fraud every day in the year and every hour in the day, have to employ extreme measures, and have sometimes gone so far as to explore a diamond smuggler's mouth. The railroad service has not yet got down to quite so fine a detail as that, but the tendency in that direction is growing, and amusing instances of ingenuity in giving respectable people what they want, while repressing those who want too much, are frequently observed. The latest of this sort is a ruling recently reported by a correspondent as having gone into effect on the Southern Railway. It says that baby carriages "containing articles other than pillows, blankets and robes belonging thereto will be turned over to the express company or the freight department, unless the owner removes the objectionable articles." What can it be that they carry in these innocent vehicles? We have recently seen a picture in a lumber dealer's advertisement, of a load of pine boards being delivered on one of them; but that was legitimate business—if the dealer could afford it. If our Southern friends will pardon us for being tale bearers we will tell them of a heinous imposition far worse than any baby carriage game, and to which they are liable everyday, even in districts where the people are too poor to own even a unicycle, to say nothing of such luxuries as four-wheelers. This game is played with a baby, without the carriage. For the information of Northern readers, we will explain that the laws in Southern States forbidding negroes to ride in the same car with "white folks" make an exception in favor of a negro nurse attending a white child. Well, there are numerous good old colored women, brought up in more or less refined surroundings, who loathe the society of ordinary whisky-soaked and swearing "niggers," and these women, when they have occasion to take a railroad journey, find a most repulsive obstacle in the rule requiring them to go into the Jim Crow car; and to get around it they have devised just the simplest trick in the world—they borrow a white baby and take it along with them. We make no charge for the information, but, on the other hand, we can offer no remedy for the imposition. It is not half so easy to stop it as it is to detect a demijohn under a pink and white embroidered carriage blanket.

In our issue of June 19, page 436, appeared a short description of the beautiful new trains recently put into service on the East Coast line from London to Scotland. These trains, it will be remembered, have some features which heretofore have been peculiarly American. They have end doors, corridors the length of the cars, Gould platforms, vestibules and couplers, Gold steam-heating apparatus and the Westinghouse quick-action brake. The first of these trains made its trial run Monday, June 29, with a party of nearly 100 invited guests on board. With them went several officers of the Great Northern Railway. At York the party was joined by officers of the North Eastern, and at Newcastle by officers of the North British. According to the account given in *Transport*, "the stately vehicles were a most imposing sight. The complete train is over 520 ft. long, each carriage being 66 ft. Perhaps the most distinctive feature of the new trains is the excellence of the third-class accommodation. Save in the color of the upholstery it is hardly different from the first class." *Engineering* says of this enterprise: "After a very long life the British railway carriage with its independent compartments begins to show signs of having passed its meridian." As journeys become longer the disadvantages of the English system begin to be more generally felt. The privacy and exclusiveness so much prized are thought to be dearly purchased by imprisonment without food and warmth. We may add that the privacy and exclusiveness are largely imaginary. One can have it to be sure for a small tip, almost always, but if he takes his chances he is liable to find himself in close contact with company which may not be pleasant. From considerable experience in both countries we are disposed to think that one has more real privacy in an American Pullman car than in the English compartment car; yet we recognize some of the comforts of the latter and have never been disposed to think that the Englishmen clung to it through sheer stupidity. In fact, we do not apprehend now any sudden or radical change in English practice, except it may be for a few long-distance trains.

In the *Electrical Engineer* of July 8, General Herman Haupt, President of the General Compressed Air Company, replies to an article on the efficiency of compressed air for street-car motors, by Robert Lundell, which appeared in that journal June 10. There is but one point in the controversy to which we wish to call attention. General Haupt says: "Mr. Lundell gives an elaborate calculation on the efficiency of air compression to demonstrate that to compress 3,600 cu. ft. of free air per minute to 2,000 lbs. will require 2,480 H. P. Any of the manufacturers of first-class compressor plants will contract to perform this service at about one-half of this calculated horse power and guarantee the results. This should be accepted as conclusive." This is unfair to Mr. Lundell's figures. He did find that it took 2,480 H. P., with an efficiency of 27 per cent., when the compression was adiabatic; that is, when no heat was allowed to escape during compression. But he also found that it took but 1,133 H. P., with an efficiency of 44 per cent., when the compression was isothermal; that is, when all the heat generated by compression is instantly carried off. General Haupt took this higher value, which is not the true one. The fact is, neither value is correct since we do not know the exact law of compression. Mr. Lundell was aware of this and said that an efficiency of 40 per cent. can be assured, or about 1,250 H. P. This is very close to the result that General Haupt claims the manufacturers will contract to give. This is an important point, and it is satisfactory to note that theory and practice agree, as they usually do when both are sound.

The report of the British Board of Trade on the use continuous brakes on the railroads of England up to Dec. 31, 1895, has just been received. We find that 99. per cent. of all carriages, etc., and 99 7 per cent. of all engines are fitted with brakes which comply with the requirements of the Board of Trade. At the end of June, 1888, the percentages were 62 and 61 respectively. Of a total of 11,510 engines 8,567 are fitted with the automatic vacuum apparatus and 2,943 with the Westinghouse automatic. Of 64,460 carriages, etc., 44,611 are are fitted with the vacuum, 19,849 with the Westinghouse. The apparatus which complied only partially with the requirements of the Board ot Trade has practically disappeared. In 1888 there were in use 1,689 carriages and 774 engines with the chain brake, including the brake in use on the North London Railway. Of these only four carriages remain and no engines. The Smith vacuum, which was considerably used in 1888, namely, on 1,529 engines and 7,641 carriages, is practically out of use. Six engines and 20 carriages only are reported as being equipped with it now.

NEW PUBLICATIONS.

Annual Report of the City Engineer of the City of Providence for the year 1895.

The annual report of Mr. J. Herbert Shedd, City Engineer of Providence, for the year 1895 has been received. The report contains its usual elaborate tables, compiled from meteorological observations taken during the year. These tables show the fall of rain and melted snow during each storm, and the duration of each storm in hours during the year, with a summary giving the number of times, from 1877 to 1895 inclusive, that the depth of rainfall of each storm has been the nearest to a series of amounts ranging from one-hundredth of an inch to eight inches. Other tables show the monthly and annual depth of rain and melted snow from 1832 to 1895 inclusive; the daily observations during each month, monthly summaries for the year 1895 and monthly temperatures since 1880. A summary of statistics of the Providence Water Works, in accordance with the suggestions adopted by the New England Water Works Association, is also given.

Work on the foundations of the Ernest Street Sewage Pumping Station was begun on February 11, 1895. These foundations are to form, as nearly as possible, a monolithic structure of Portland cement concrete, the only brickwork used being in the lining of the pump wells and the invert to the screen chamber. Section 16 of the sewer will pass under the Providence River and is being built by tunneling. Work was begun on April 1, 1895, at the west bank; a shaft was first sunk to a depth of 50 ft., and the tunnel then pushed out at the depth of 44 ft. The tunnel is 774 ft. in length between centers of shafts, four feet interior diameter with walls one foot thick, and is lined with brick, the steel plates forming the outer shell being placed so as to break joints. The tunnel was driven in silt or mud, with occasional thin streaks of sand.

The topographical work at Roger Williams' Park has been completed, and maps showing contours for each two feet of elevation have been made.

Considerable bridge work has been done during the year, calling for a large amount of work from the department. The new Red bridge was opened for travel Dec. 23. The first iron bridge at this location was completed in 1872, and its removal was begun in February, 1895; it was found that all the concealed parts were rusted badly, in some places as much as 20 per cent. being eaten away. The new bridge is 48 ft. wide. The masonry consists of two abutments, two draw rest piers and a circular central pier, on which the draw revolves. The driveway floor is of steel shapes riveted together and supported on 15-in. I-beams; the trough shapes are leveled with hydraulic concrete and covered with 2 in. of asphalt. The sidewalk floor is also of steel, and raised 6 in. above the driveway; it is also leveled with Portland cement, and covered with asphalt. Two 20-H P. Westinghouse electric motors are used for operating the draw. On the main horizontal shaft is placed an equalizer, to divide the power equally between the two pinion gears. A full table of receipts and expenditures by the department for the year 1895 is contained in the report.

Electricity and Magnetism. By Francis E. Nipher, A. M., Professor of Physics and in charge of Electrical Engineering of the Washington University, St. Louis. Quarto, 426 pages, with 147 illustrations. St. Louis: John L. Boland Book and Stationary Co., 1895.

Professor Nipher's work is a mathematical treatise on electricity and magnetism. The general scope and plan of the work is given in the preface, in which he says, "There has been no attempt to avoid any legitimate analytical method because it is not popularly known, but on the other hand there has been no attempt to avoid wasting the time of the reader over puzzles and obscurities which are made difficult and called easy. All the resulting equations are illustrated by numerical examples which are fully solved, so that those who do not care to follow the mathematics may easily and safely use the results in the work of designing. . . . The aim has been to secure clearness and preserve the logical unity of the treatment which has been attempted."

The plan of the author has not been to bring the book down to the understanding of the student, but rather to lead him up in a logical order to the more difficult mathematical analyses. The following are the topics that are discussed in the order in which they appear in the book: Attraction, potential, electro statics, capacity, energy, magnetism, electric currents, variable currents with constant potential source, alternating currents, iron cores in electric magnetic systems, and units. He closes with a chapter in which are given the solution of some abstruse but important problems. About one-half of the book is taken up by a treatment of the chapters on electric currents, variable currents with constant potential source and alternating currents. The solved numerical examples after all the equations is a commendable feature of the work.

The book has been written for advanced undergraduate students, but we question if it will find a field as a text book except in post-graduate courses. Anyone desiring a purely mathematical treatment of the subject will find the matter in this book well arranged and presented in a masterly manner.

Proceedings of the Society for the Promotion of Engineering Education. Volume III., for the year ending September, 1895. Published by the Society: C. Frank Allen, Massachusetts Institute of Technology, Boston, Mass., Secretary. Price $2.50.

The third annual publication of the Society for the Promotion of Engineering Education has made its appearance. In the Secretary's report it is stated that 32 additional members were received during the year 1894–1895, making a total membership of 188. The book contains a large amount of valuable literature upon technical education, which will be read with great profit by those interested in the subject. Some of the topics of especial interest are: Entrance requirements for engineering colleges, the scope of an engineering college, specifications for text books, graduation, thesis and degrees; also outlines of study in mechanics, physics, astronomy and biological science for engineering students. The paper on courses in civil, sanitary, mechanical, mining and electrical engineering are especially valuable.

The Technic. The Annual of the Engineering Society of the University of Michigan; edition of 1896. Published at the University of Michigan, Ann Arbor. Price 50 cents.

This volume has 132 octavo pages and contains something more than 20 articles by as many different writers, besides a register of the engineer alumni of the University of Michigan. Among the names of the contributors those of Prof. Charles E. Greene, of the University of Michigan; Prof. R. C. Carpenter, of Cornell; Prof. De Volsen Wood, of Stevens; Mr. George Y. Wisner and Professors M. E. Cooley and J. B. Davis, of the University of Michigan.

Transactions of the Association of Civil Engineers of Cornell University. Edition of 1896. Published by the Association at Ithaca, N. Y.

The annual of the Cornell Engineers' Association is an octavo pamphlet of 121 pages containing lists of members and graduates and nine papers, these last including a number of addresses delivered by non-resident lecturers.

TRADE CATALOGUES.

Thornycroft Water-Tube Boilers.—Messrs. John Platt & Co., of New York, have issued a small pamphlet, in which is described the Thornycroft water-tube boilers. These boilers are used principally on torpedo boats in France, Germany, America, etc., and the total number now in use or in the process of construction represent an aggregate of over 200,000 H. P. It is possible in these boilers to raise steam in 20 to 30 minutes and more quickly if desired. The Thornycroft patent automatic feed regulator is also illustrated and described. The important feature of this invention is the method adopted for enabling the float to be adjusted to stand at a definite height, although the amount of valve-opening required to admit sufficient feed water varies with the different rates of speed.

Watertown Direct-Connected High-Speed Engines.—The Watertown Steam Engine Company, of Watertown, N. Y., has issued a 24-page pamphlet in which are presented simple and compound, horizontal and vertical engines directly connected with electric generators of a number of the standard types. The direct connection of the dynamo to the engine is rapidly growing in favor, and this little pamphlet will be useful to those interested in the subject. The half-tone engravings are of an exceptionally high order.

The Hudson River Day Line (New York and Albany steamers) has issued a new excursion pamphlet for 1896, which contains the usual very complete lists of routes and rates and of Catskill Mountain resorts, and there are full page pictures facing nearly every page of the text. The matter in the book seems to have been compiled with great care, and evidently affords a very complete manual of the field it is designed for.

Uniformity in Car Construction.

(*Continued from page* 505.)

THE WHEEL TREAD.

Topic No. 14 was: "Is the present M. C. B. standard shape of wheel tread and flange the best that can be designed for service?"

Mr. BARR: I have a blue print here which reveals the fact that our present adopted dimensions won't go quite together; you have to squeeze them a little bit. In the present standard the fillet in the throat is ⅝-in. radius. We started from the center line of the rail with a 10-in. radius, gradually decreasing the radius to ½ in., and that gained in the throat quite an amount of metal to wear off. In addition to that we gained the tendency, if the truck runs to one side, to run up on the fillet and guide itself away. The result has been a very decided decrease in flange wear; and one of the most serious sources of expense in the use of wheels is the rejections from flange wear. The tread is horizontal for $1\frac{3}{16}$ in. outside; by horizontal, I mean the tread is cylindrical, and from that point it passes off with a curve, which leaves the outside of the tread considerably easier and less projecting than in our present standard, which is a very good thing in going over frogs. These are minor points, but we feel that there is a good deal of money in them.

DEFECTIVE PACKING AND OILING.

Topic No. 15 was: "Is the provision in the M. C. B. rules for charging owners in brass replacements on foreign cars inconsistent with the proper care of cars while on foreign lines, as to lubrication of journals; and in the generally prevailing strife throughout the country in the direction of satisfactory oil record, is it probable that no oil will be replaced on foreign cars when a wrong bearing is replaced at the owner's expense?"

Mr. WAITT: Mr. Preston, who introduced this subject, cannot be here. The idea is that there is a tendency on the part of some companies, when they replace the journal bearings at the owner's expense, not to give the proper packing, and therefore on many occasions the bearings would heat. I do not know whether the rest of us are having any experience of that kind, and surely none of us here would countenance for a moment placing a journal bearing in a car belonging to some other company, withholding the proper attention to oil and waste which is needed.

Mr. BARR: I agree with Mr. Waitt; I do not believe our men would do anything of the kind; but last month's report shows that 47 per cent. of our hot bearings were on foreign cars, and I am a little inclined to think that our men are not as particular with foreign cars as they are with their own.

Mr. DAY: It would be foolish not to give the cars the proper attention as far as greasing is concerned. We do not want the foreign cars set out on our line any more than we want one of our own cars. We take good care when we put a journal bearing on a foreign car to give it a thorough packing and lubricating, to get it over our line safely, and it does not appear to me that any of us would be guilty of such a thing as withholding this attention, if we knew it.

Improved Wheless System for Electric Railroads.

Doubtless most of our readers are familiar with the Wheless system for electric roads as given in the *Railroad Gazette* of July 26 and Sept. 13, 1895. It is the purpose of this description and explanation to dwell upon the improved system as developed by the Electro-Magnetic Traction Company of West Virginia, and by the Westinghouse Company.

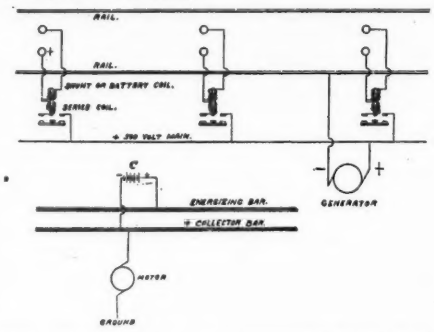


Fig. 1.—Connections for the Improved Wheless System.

Fig. 1 is a diagram showing the connections for the system. The lower portion of the figure shows the car connections.

The collecting bars, which are supported from the car truck by adjustable links, are long enough to make contact with the former group of buttons before breaking contact with the rear set, thus making a continuous flow of current from the feeder so that no flash will occur when the bar leaves a button.

To start the car, the connecting bars being already in contact with one group of contact plates, the battery switch is closed and the current passes from the bar to the battery plate, thence through a fine coil magnet in the switch box and back to the storage battery C, as shown in the diagram. The magnetism, thus produced, raises the armature of the magnet and brings into contact two pairs of carbon discs. The current from the feeder now passes through the carbon contacts and a coarse coil on the magnet marked in Fig. 1, as series coil, thus assisting in holding the switch closed, and thence to the motors by means of the positive contact button and the corresponding collecting bar. From the motors the current passes to the rails or ground as usual. As the car moves forward the two collecting bars come into contact simultaneously with the two buttons of the next group and the process is repeated.

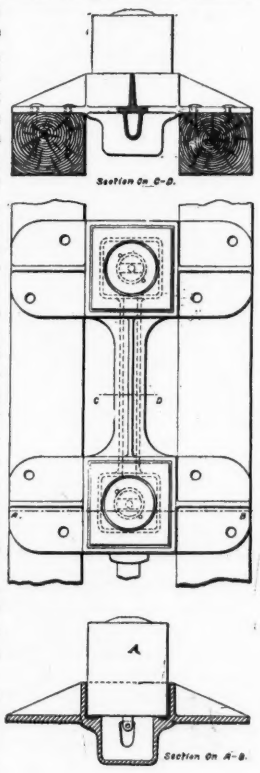


Fig. 2.

The instant the bars leave a set of contact buttons that particular circuit is open, the magnet armature falls by gravity, thus opening the switch and disconnecting the feeder from the positive button. It is evident, therefore, that all the buttons are "dead" excepting those directly under the car.

Fig. 2 shows how the contact plates are installed. They are made of chilled cast iron, about five inches in diameter, and project about five-eighths of an inch above the pavement. They are mounted in blocks, *A*, Fig. 2, which are hermetically sealed into cast-iron cups having flanges by which they are spiked to the ties Fig. 3 gives a sectional view of these castings, to which are fastened the buttons and blocks. The wires leading from the castings to the switches are inclosed in iron pipes. *P* is the iron contact pin.

The switch magnet, Fig 4, which is of the horse-shoe type, is provided with a fine winding for the battery current, and a coarse winding through which the working current passes. The poles hang vertically and work in connection with an armature attached to a bridge piece,

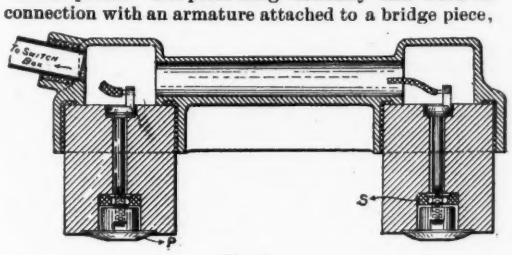


Fig. 3.

each end of which carries a carbon disc one and a half inches in diameter. Directly above each of these discs is a stationary disc mounted upon the marble bed of the magnet. One of the fixed carbons is permanently connected to the positive main cable, and the other, through the course coil, to the positive contact button. The marble base of the switch is secured to lugs on the interior of a bell-shaped cast-iron case, as shown in both views of Fig. 4.

This bell rests in an annular oil seal in the cast-iron pan, thus perfectly protecting the switch from moisture and dust. The general construction is the same as employed on the ordinary switches. The wires pass through holes in the lower part of the pan and are firmly clamped in

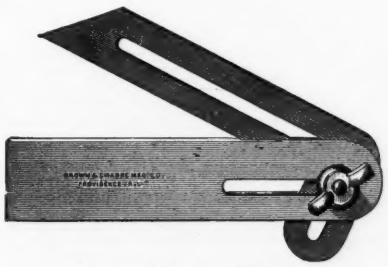
Fig. 6.—Longitudinal Section of Road-Bed.

position; connection is then made with the switch and the magnet coils by means of three vertical split brass rods, which slide into receptacles on the switch base. The pan is completely filled with paraffine, after the wires are in place, thus effectually keeping out the moisture.

The junction box is similar in construction to the switch boxes. It contains a feeder circuit breaker on one side and flexible plugs for making the necessary connections on the other. Figs. 5 and 6 show respectively the arrangement of switches and the longitudinal section of roadbed. The system is now being applied to a 75-ton electric locomotive designed and constructed by the Baldwin Locomotive Works in conjunction with the Westinghouse Company.

New Depth Gage and Improved Bevel.

Messrs. Darling, Brown & Sharpe have just brought before the public two instruments that are worthy of notice.



Improved Universal Bevel.

The above cut shows the 3-in. improved universal bevel with off-set blade. The off set in the blade increases the capacity of the bevel so that it may be set at any angle, however slight. The blade is clamped firmly in place by the thumb nut shown in cut. The top of the case is solid for 1½ in. back from the square end, and forms a rest immediately underneath the blade, for use when it is desired to accurately fit templets, etc. The case is about ⅛ in. thick and ⅝ in. wide.

New Depth Gage.

The 6-in. rule depth gage shown has been designed with a view of furnishing a tool at once both durable and convenient.

The head is made of a solid piece of hardened steel, ⅛ in. thick and 2 in. long, of such form that it can be conveniently held while taking measurements. It is milled to receive the rule or blade, which slides in a slot in back of head. The front of the head is beveled back, as shown, to the width of the rule to facilitate the reading of the graduations. The clamping device is made in such a manner that by tightening the screw shown on front of head the blade is clamped upon both edges and held firmly in place.

The blade is a 6-in. narrow tempered steel rule, about $\frac{7}{32}$ in. wide and about $\frac{1}{50}$ in. thick, and can be easily and quickly detached from the head and used as an ordinary scale. The blade or rule furnished with the head is divided into 64ths on one side and 100ths in. on the other.

TECHNICAL.

Manufacturing and Business.

The Schoen Pressed Steel Co., of Pittsburgh, in addition to the extensive improvements made last year, has now in course of construction a steel building 90 ft. × 400 ft., which is to be equipped with hydraulic cranes and a full complement of machinery as an addition to its pressed steel truck department.

The Southern Iron Car Line is negotiating for the purchase of 4,000 air-brakes for its present equipment.

The H. B. Williams Manufacturing Co., of Chicago, has been incorporated in Illinois with a capital stock of $240,000. It is to manufacture railroad appliances. H. B. Williams, H. H. Sessions and J. M. Thompson, of Chicago, are the incorporators.

New Stations and Shops.

S. S. Leonard has the contract for erecting the new Union station at Jacksonville, Fla., which is being built by the Jacksonville Terminal Company, organized by the roads entering Jacksonville, Fla., which are to use the new station. J. F. Parrott, Vice-President of the Florida East Coast road, is President of the Terminal Company.

Ground has been broken at Old Town, Me., for the erection of the round houses, coal sheds, etc., by the Bangor & Aroostook road, on land recently purchased by the city for the company.

The management of the Baltimore & Ohio Railroad has decided definitely to build a large and modern passenger station and office building at Wheeling, W. Va. The damage done to the old building by the flood in Wheeling Creek last week was so extensive as to make it inadvisable to attempt to repair it, particularly as it has long been inadequate for the business at Wheeling. The entire building, train sheds and accessory buildings are being razed. A two story frame building has been erected at the corner of Twentieth and Main streets into which all the offices have been moved until a new station is built. Chief Engineer Manning left Wheeling Monday night for Baltimore with three sets of plans for the station, one of which was to be decided upon this week. Each of these contemplates a separate location for the new building. Plans have been also drawn for new buildings at Benwood Junction, opposite Wheeling. The junction will be made the terminal headquarters for all business on the Central Ohio, Pittsburg, and eastern divisions of the road, and train sheds and a large station and hotel will be provided.

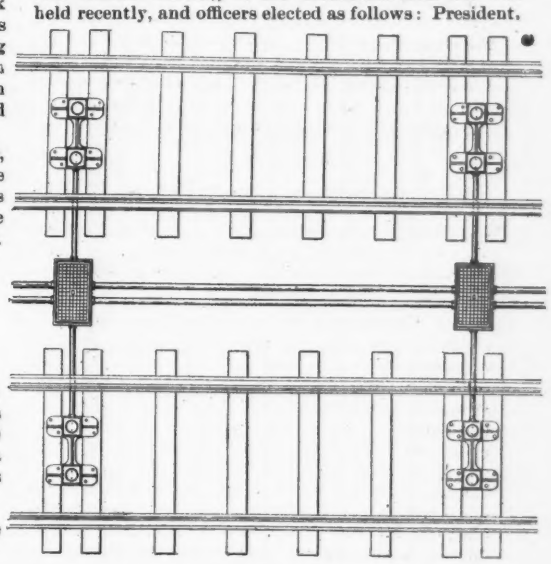


Fig 5.—Arrangement of Switches for Double Tracks.

Iron and Steel.

The annual meeting of the Minnesota Iron Co. was held recently, and officers elected as follows: President, D. H. Bacon; Vice President, Henry Seibert; Treasurer, A. J. Paterson, and Secretary, C. P. Coffin.

A meeting will be held in Philadelphia this week, by the pig-iron manufacturers of the Eastern and Central states, for the purpose of forming a pool to prevent overproduction and the further cutting of prices. The manufacturers in the Mahoning and Shenango valleys have received letters from George Brooke, Chairman of the Eastern Pig Iron Producers' Association, including the Lehigh, Schuylkill, Susquehanna, New Jersey and Virginia regions, asking their assistance in the formation of the pool.

The Basic City Furnace Co. has been organized at Basic City, Va., with William Kaufman, President; C. N. Wise, Vice-President; M. H. Leonard, Secretary, and D. H. Winegard, Treasurer. The Bon ore bank has been purchased and will be developed at once.

The American Steel Co., organized in West Virginia, will operate the Premier steel plant at Indianapolis, Ind., in the interests of the American Tin Plate Co., of Elwood, and the American Wire Nail Co., of Anderson.

The Franklin Steel Casting Co. is building an addition to its machine shop at Franklin, Pa., 180 ft. × 100 ft. A new open-hearth furnace, a sand mill and two electric cranes are also being put in. The company has orders for 32,000 sets of M. C. B. couplers, which compels the putting up of a separate building of 200 ft. × 100 ft.

Plans are being prepared for an open-hearth steel plant of three 30-ton furnaces for the Ætna-Standard Iron and Steel Co., Bridgeport, O. It is probable that this plant will be erected and put in operation before the end of this year. It is stated that the stockholders have decided to issue $200,000 bonds for the purpose.

The Seaboard Air Line will build a combined passenger and freight station at Rutherfordton, N. C.

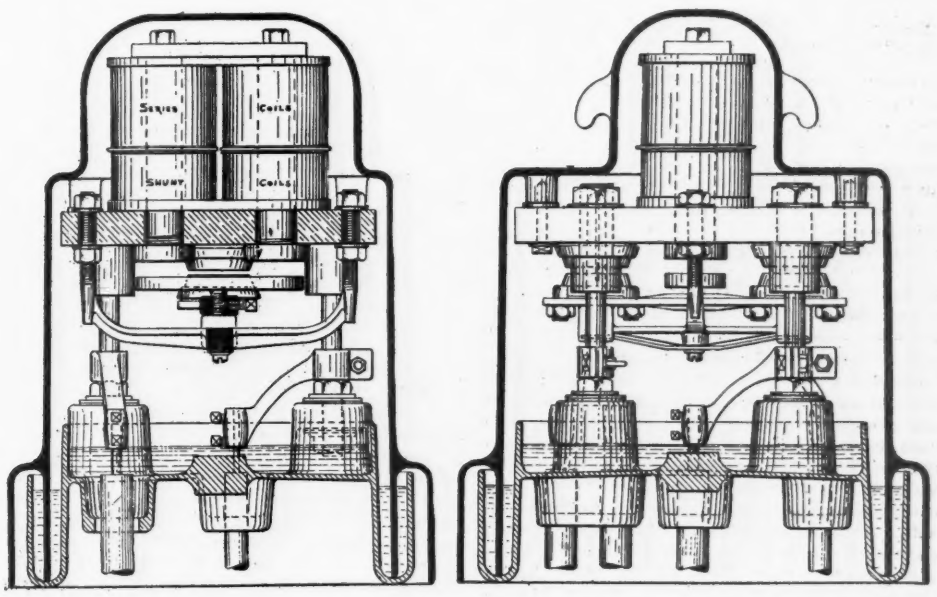


Fig. 4.—The Switch Magnet.

Interlocking.

The Standard Railroad Signal Company, of Rahway, N. J., has taken the contract to erect a 36-lever interlocking machine for the Baltimore & Ohio Railroad at Mount Royal; also to erect a 20-lever machine for the Erie road at Arden, N. Y.

The Mississippi River Improvements.

The Mississippi River Commission at recent meetings in New York decided to recommend that $4,500,000 of the $9,000,000 appropriated by Congress should go to the building of levees along the banks of the river between the northern boundary of Kentucky and the mouth of the river. Of this amount, it was recommended that $3,250,000 be spent during the first two years, and the remainder between then and June 30, 1900. The other half of the appropriation will be recommended for expenditure in accordance with the original bill for dredging and the other expenses enumerated in the bill.

Foreign Trade.

French engineer, Mr. A. Blot, 40 Rue des Martyrs, Paris, has written to say that he would like to get into communication with some houses in the United States making wheels, rails and paper wheel centers. We publish the fact for the information of those who are disposed to seek a market abroad.

Cast Iron Pipe for Costa Rica.

The South Pittsburgh Pipe Works, South Pittsburgh, Tenn., has an order for 1,500 tons of cast-iron water-pipe for shipment to Costa Rica, Central America. The contract was taken in competition with foundries in the United States, England and Belgium.

Gold Car-Heating System.

The Wagner Palace Car Co. has applied the Gold duplex coil system of steam heat to 15 new sleeping-cars. These cars are very large, being 72 ft. over bodies, and are to be used in service in the Chicago and Minneapolis limited trains over the Chicago & Northwestern and Omaha roads.

The order for heating these cars was given to the Gold Car Heating Co. after a thorough trial of the apparatus last winter on trains running between Chicago and Minneapolis. It was found that the apparatus had ample power to heat the cars in the coldest weather with either steam or fire and without any noise or pounding in the pipes. The Gold Company has applied the same system of steam heating during the last year to private cars of M. E. Ingalls, President, and C. E. Schaff, General Manager of the "Big Four"; J. A. Barnard, General Manager of Peor'a & Eastern; H. H. Porter, Chairman of the Board, and E. P. Broughton, General Superintendent of the Chicago & Eastern Illinois; J. G. Rawn, General Superintendent of the Baltimore & Ohio Southwestern; A. W. Johnson, General Superintendent "Nickel Plate," and E. Dickinson, General Manager of the Union Pacific.

Master Car Builders' Rules of Interchange.

The Rules of Interchange, as revised at Saratoga, N. Y., in June, which go into effect on Sept. 1, 1896, are ready, and will be furnished at the same rates as heretofore, viz.: 25 copies, $1; 50 copies, $1.75; 100 copies, $3. A less number than 20 copies, at five cents per copy. Postage will be added in all cases when sent by mail. There will be no printing on the cover except "Revised, 1896," unless otherwise ordered and specified, in which case the additional printing on the cover will be charged additional at cost. Parties who wish copies of these revised rules should make requisition on the secretary, and specify additional printing on the cover, if wanted.

Letter Ballot on M. C. B. Standards.

At the Convention of the Master Car Builders' Association held at Saratoga, N. Y., in June, 1896, it was decided, by motion, to refer certain recommendations for Standards and Recommended Practice, to letter ballot on the following subjects:

A.—Revision of the Standards and Recommended Practice.
B.—Mounting Wheels.
C.—Axle, Journal Box, Bearing and Wedge for Cars of 80,000 Pounds Capacity.
D.—Handholds and Height of Drawbars.
E.—Stenciling of Cars.
F.—Loading Lumber and Timber on Cars.
G.—Loading Long Structural Material on Cars.

The Secretary has sent out under date of July 11, the blank and necessary information for letter ballot. The votes will be counted Aug. 10.

Ice Crusher on the Volga.

An ice crusher whose design presents some interesting features has been built by Sir William Armstrong & Co., of Newcastle, England, for service on the river Volga in Russia. e vessel is both too long and too deep to pass through the canal from the river Neva to the Volga, and to accomplish this passage she has been built in two sections, each half being a complete vessel in itself, having one side flat, or straight, which, when joined in the complete vessel, forms a center line bulkhead of double thickness. Each half has its own boiler, engine and propeller, but the rudder is connected to one half only, and there is but one pilot house. The vessel steamed from Newcastle to St. Petersburg, where, without dry-docking, the two sections were separated by removing the athwartship bolts and plugging the holes. Each half was then floated on to a canal boat, which had been partly sunk for the purpose, then shored and the water pumped out, and in that state passed through the canal. On reaching sufficient space and water the two sections were floated out and joined again without dry docking.

The Steamer Middletown.

The steamer City of Springfield, of the Hartford and New York Transportation Co., which for many years plied between New York and Hartford, was, on the opening of this season, replaced by a new boat, the Middletown, built by the Neafie & Levy Ship & Engine Building Co., of Philadelphia, Pa. The Middletown is, in many respects, a duplicate of the Hartford, which was built by the same firm and put into commission two seasons ago. The length was increased to 255 ft., the molded beam being about the same, but cellular guards were introduced, without any of the usual brace rods, making the deck width of the new boat 50 ft. The depth moulded is about 13½ ft. The house plan was modified by constructing a double tier of rooms amidships, giving accommodations for 322 persons. The excessive height of freight and other decks was reduced. The Middletown has immense freight capacity, and is, therefore, well adapted to handle the great freight business of her owners. The inclosures around the machinery are of steel, and are carried up to the hurricane deck unbroken. As these steel structures are felted and sheathed, no heat is transmitted to the passenger accommodation, and there is no risk of fire. Forward on the freight deck is the Williamson steering engine, while in the extreme bow are the crew's quarters, the galley and the steam windlass. An inclosed stairway leads to the upper saloon from the forward freight deck. In the lower hold, forward and aft, are open berths for 150 passengers, special attention being given to ventilation, as the rooms extend only to the two longitudinal steel bulkheads. There is a free circulation of air all around the boat outside of these bulkheads.

The saloon is spacious, well lighted, and finished in white and gold. The staterooms give accommodations for 130 passengers.

The propelling machinery consists of two vertical inverted compound engines, with cylinders 20 in. × 40 in. × 28 in. Steam is supplied by four return tube boilers 8½ ft × 14 ft. There is an auxiliary boiler on the main deck. The engine room contains powerful pumps and other auxiliaries, including an electric light plant, which furnishes incandescent lighting for the vessel.

There is also a search light on the pilot house. The performance of the machinery and boat have thus far proved very satisfactory.

Suggestions About Cutters.

Under this title the Brown & Sharpe Company sums up "some things that we all know, but do not always keep in mind," as follows:

Cutters should be kept sharp. As soon as there is any appearance of dullness pass them once or twice in front of an emery wheel. This, in the long run, will save time in sharpening, will prolong the life of the cutters, and will enable them to do their best and most rapid work.

Plenty of lubricant should be used in milling wrought iron and steel. Lard oil is generally the best, but in some cases the following soda-water mixture will answer very well: One-quarter pound sal-soda, one-half pint lard oil, one-half pint soft soap, water enough to make ten gallons. Boil one-half hour.

A cutter of small diameter, other things being equal, is better than one of large diameter. It also costs less. Formed cutters are usually the most economical when duplicate pieces are required. They last a very long time, and all pieces cut by them are practically interchangeable. When stock cutters or combinations of stock cutters can be made to answer the purpose it is usually better to order these than to have special cutters made.

In selecting a cutter, except for finishing cuts, it is usually best to err on the side of having too few rather than too many teeth. The tendency in everything, except finishing cuts, is toward coarser speeds and relatively slower feeds. To do its best work the cutter must be used in a powerful and rigid machine.

Preserving White Oak Bridge Ties.

The American Wood Preserving Co., of Philadelphia, has received, through its Southern representative, F. A Kummer, C. E., 23 South street, Baltimore, an order for 800 gals. of timber preservative, to be used in treating the white oak ties and guard timbers of a bridge now being built by the Cincinnati, New Orleans & Texas Pacific over the Cumberland River. Railroad companies that have used this preservative find that it has a peculiar value in penetrating and preserving hard woods. At the same time, its effect on soft woods is to harden, as well as penetrate and preserve, them. The tests of treated red oak on the Pennsylvania Railroad, extending over 13 years, have induced an important Western road to place a large order for use on this wood.

Hartford School of Technology.

A new school, to comprise courses in steam engineering and applied mechanics is to be instituted at Trinity College, in Hartford, Conn. Professorships of steam engineering and applied mechanics will be endowed, and a new building and workshop will be thoroughly equipped. Although the new school will be under the direct control of Trinity College, it will be known by some special title, such as the Hartford School of Technology, which will show specifically its character. It is proposed that it be pre eminently a Hartford institution, offering special opportunities to students from Hartford and vicinity. The total amount needed is estimated at about $300,000. Many representative Hartford manufacturers are interested in the scheme; among them are: President J. M. Allen and others of the Hartford Steam Boiler Inspection and Insurance Company; Charles E. Billings, of the Billings & Spencer Company, and Francis C. Pratt and George M. Bond, of the Pratt & Whitney Company.

The Ferryboat Virginia Launched.

The iron side-wheel ferryboat Virginia, which is being built for the Brooklyn and New York Ferry Company, was launched from Roach's shipyard, at Chester, Pa., on July 11. The dimensions are: Length over all, 169 ft. 7 in.; beam, 36 ft. 6 in.; depth of hold, 12 ft. 6 in.; gross tonnage, 810.29. The motive power will consist of one jet condensing, beam engine with cylinder, 42 in. in diameter by 10 ft. stroke of piston. The steam will be supplied by a double flue, cylinder boiler, 28 ft. in length by 10 ft. 6 in. in diameter. The Florida, a sister boat will be launched in a few weeks.

THE SCRAP HEAP.

Notes.

Edward M. Clifford, the murderer of William G. Wattson, was sentenced this week at Jersey City, to be put to death on Sept. 17.

The Detroit Tribune reports that every street railroad in that city now carries passengers for 3 cents each, the last road to adopt this rate being the Fort Wayne & Belle Isle.

The Post-Office Department is negotiating with the American Line (New York–Southampton) and one German line to deliver mails from Europe to small boats at the quarantine station in New York Harbor, to be taken directly to the railroad stations at Jersey City and to Forty-second street, New York City, for quick transmission to the Grand Central Station. In this way mails for all points outside of New York City will avoid the considerable delay now incurred in going to and from the General Post Office.

The general and division officers of the Columbus Hocking Valley & Toledo have formed an organization for the discussion of subjects connected with their business, and it is called the Association of the Officers and Junction Agents of the Columbus, Hocking Valley & Toledo Railway. The Association is to hold a meeting on the last Tuesday of each month and the agents at the terminal stations and junction points are members. The agents at smaller places were left out because it would be impracticable for them all to leave their duties at the same time to attend meetings.

The Plant System of railroads has established a relief and hospital department for its employees, on a broad and comprehensive plan, and it went into effect July 1. A hospital has been established at Waycross. Employees are divided into two classes, the first to include men engaged in the operation of trains, and the second all others. There are five rates of assessment, varying according to the salary of the individual. Persons receiving under $35 a month pay $1.25 a month if in the first class, and $1 if in the second. The company pays the operating expenses and $1,000 a month into the general fund.

The Manitowoc Harbor Improvements.

The Chicago & Northwestern has let a contract to the Chicago Dredging & Dock Co. for a car ferry and boat slip near the entrance of the harbor at Manitowoc, Wis., with about 2,200 lin. ft. of shore protection along the lake. The car ferry slip will take in boats 400 ft. in length, 55 ft. in width; boat slip 800 ft. in length and 60 ft. wide. The slip will be dredged 21 ft. below low water.

A Large Tax Bill.

The Pennsylvania Railroad last week paid into the city treasury of Philadelphia over $261,000 as taxes on its real estate in Philadelphia. The property holdings of the company in the city were assessed this year at $20,000,000. The largest item was, of course, the Broad Street Station, which, including the elevated structure to the Schuylkill River, was assessed at $2,228,000; other high priced properety is the old Thirty-second and Market Street station which the tax officers value at $2,000,000, the old navy yard in Federal street, over $1,000,000; the old office buildings on Fourth street, formerly assessed at $400,000, now $200,000; and the old Philadelphia, Wilmington & Baltimore station, $406,000.

LOCOMOTIVE BUILDING.

The Pennsylvania is to build eight engines at its own shops for the Western Pennsylvania Division.

CAR BUILDING.

The Carlisle Manufacturing Co. has secured the order for 250 cars for the Pennsylvania, originally awarded to the Middletown (Pa.) Car Works.

The Cincinnati, Jackson & Mackinaw has just received five new day coaches and three baggage cars. Two of the coaches are parlor cars, with smoking compartments.

The Rome, Watertown & Ogdensburg has placed in service a number of new day coaches, seating 64 passengers. They have Hale & Kilburn seats, and are mounted on Krupp steel wheels.

BRIDGE BUILDING.

Burlington, Ia.—The Board of Supervisors awarded contracts July 1, as follows: 42 ft. steel bridge in Yellow Springs Township, Fair Williams Bridge and Manufacturing Co., Ottumwa, Ia., $307.78; 38-ft. steel bridge in Union Township, Groton (N. Y.), Bridge and Manufacturing Co., $330; 30-ft. steel bridge at Pleasant Grove, and 26-ft. steel bridge in Yellow Springs, C. W. Atkins, $225 and $185 respectively.

Chicago.—The Board of Trustees of the Sanitary District of Chicago will receive bids until September 2 for the superstructure and the substructure for the Elgin, Joliet & Eastern's bridge on section 34, township 36, range 10 in Will County, Ill.; and also for the superstructure and substructure for the Western avenue boulevard bridge at the intersection of Southwest boulevard and the main channel. B. A. Eckhart is president of the board.

Columbia, Miss.—Plans for a steel bridge across Pearl River at this point have been submitted to the County Board of Supervisors.

Columbus, Wis.—The City Council has awarded the contract to the Milwaukee Bridge & Iron Works for a bridge over the Crawfish, on the Lowell road, for $1,650. The bridge is to be 80-ft. single span and 16-ft. roadway.

Cuddebackville, N. Y.—The Highway Commissioners of the town of Deerpark have given the contract for a

steel bridge over Basha's Kill at this place to the Groton (N. Y.) Bridge Co. for $650.

Duluth, Minn.—The contract for the superstructure of the Duluth Superior bridge has been given to the Pennsylvania Steel Co. for about $250,000. Alexander McGaw, of Philadelphia, has the contract for the substructure, his contract being also in the neighborhood of $250,000. The bridge consists of two 300-ft. through spans and a 491-ft. draw span for double-track railroad, two trolley tracks and roadways and two sidewalks.

Iverness, Que.—W. H Lamblv, Secretary-Treasurer invites tenders for two new steel bridges to be built in this city.

Jersey City, N. J.—It is said that the Board of Freeholders has ordered plans and specifications drawn for a new bridge over the Morris Canal at Pacific avenue.

Lock Haven, Pa.—The County Commissioners have awarded the contract for the new iron bridge near Cedar Hill Cemetery to Nelson & Buchanan, Chamberburg, Pa.

Luke, Md.—The Baltimore & Ohio has commenced a bridge across the Potomac at this point so that they can transfer cars to and from the West Virginia Pulp and Paper Mills without using the West Virginia Central tracks.

Osceola, Mo.—The St. Clair County Court and the Kansas City, Osceola & Southern have entered into an agreement to build a wagon and railroad bridge across the Osage River at this place.

Ottawa, Ont.—Mr. J. H. Balderson, Secretary Department of Railways and Canals, will receive tenders for the construction of a railroad bridge at Auburn, Ont. Specifications may be seen at the above department, and at the office of the Superintending Engineer at Peterboro.

Paterson, N. J.—The contract for a brown stone bridge on West street has been given to Keepers & Thacher, Detroit, Mich., for $60,890.

Penetang, Ont.—The Grand Trunk Railway Company will build three bridges between here and Perkinsfield.

Peterboro, Ont.—The Central Bridge & Engineering Co., Ltd., of this place, has been awarded the contract for the York street bridge, Toronto.

Rockland, Me.—The County Commissioners have awarded the contract for the Spruce Head bridge to the Wrought Iron Bridge Co., Canton, O., at $4,200.

Shelburne Falls, Mass.—It is reported that the Norton Iron Co., East Everett, Mass., has received the contract for building four bridges on the Shelburne Falls and Colrain street railroad, at $7,300.

Tilbury Centre, Ont.—The contract of building an iron bridge, 85 ft. long, over Big Creek, has been let to the Central Bridge and Engineering Co., of Peterboro, at $810.

Wilkes-Barre, Pa.—The Traction Company has awarded the contract for its steel bridge over the Lehigh Valley tracks to North Welles street to the Pennsylvania Steel Works, Harrisburg, Pa.

Winona, Minn.—Bids were received as follows for a steel bridge on Gilmore street: Chicago Bridge & Iron Co., $549; Gillette-Herzog Mfg. Co., Minneapolis, Minn., $582.50; King Bridge Co., $625; N. M. Stark Co., Des Moines, Ia., $576; Wisconsin Bridge & Iron Co., Milwaukee, Wis., $672. The contract was given to the Chicago Bridge & Iron Co.

Woodstock, N. B.--Donald Munro, Superintendent of Water Works, is receiving tenders for the construction of a steel bridge over the Maduxnakeag River, on abutments furnished by the town, superstructure to consist of spans of 40, 57 and 50 ft. each.

Woodstock, Ont.—William Lazenby and James Virtue invite tenders for the construction of a bridge 40 ft. in length across the stream on the fourth concession of the township of Oxford. Plans and specifications may be seen at the office of Mr. James Virtue, this town.

Worthington, Minn.—It is stated that bids will be received July 23 for the superstructures of two steel bridges, one of 96-ft. span, the other of 32-ft. span. John J. Kendlen is County Auditor.

MEETINGS AND ANNOUNCEMENTS.

Dividends.

Dividends on the capital stocks of railroad companies have been declared as follows:

Augusta & Savannah, 2½ per cent., payable July 15.
Burlington, Cedar Rapids & Northern, 2 per cent., payable Aug. 1.
Mine Hill & Schuylkill Haven, 4 per cent., payable July 15.
New Orleans & Carrollton, quarterly, $1.50 per share, payable July 20.

Stockholders' Meetings.

Meetings of the stockholders of railroad companies will be held as follows:

California Eastern, special, company's office, Equitable Building, Denver, Col., July 24.
Delaware River Railroad & Bridge Co., special, Camden, N. J., July 17.
West Virginia & Pittsburgh, annual, Weston, W. Va., Aug. 11.

Technical Meetings.

Meetings and conventions of railroad associations and technical societies will be held as follows:

The *American Street Railway Association* will hold its annual convention at St. Louis on Oct. 24 and 25.

The *Roadmasters' Association of America* will hold its next annual meeting at the Cataract Hotel, Niagara Falls, N. Y., beginning Sept. 8.

The *Traveling Engineers' Association* will hold its next annual meeting at Minneapolis, Minn., commencing Sept. 8

The *Roadmasters' Association of America* will hold its next annual convention at Niagara Falls, beginning on Sept. 8.

The *Railway Signalling Club* will meet on the second Tuesday of the months of January, March, May, September and November, in Chicago. Mr. George M. Basford, is secretary, The Rookery, Chicago.

The *Western Railway Club* meets in Chicago on the third Tuesday of each month, at 2 p. m.

The *New York Railroad Club* meets at the rooms of the American Society of Mechanical Engineers, 12 West Thirty-first street, New York City, on the third Thursday in each month, at 8 p. m., except in June, July and August,

The *New England Railroad Club* meets at Wesleyan Hall, Bromfield street, Boston, Mass., on the second Tuesday of each month.

The *Central Railway Club* meets at the Hotel Iroquois, Buffalo, N. Y., on the second Friday of January, March May, September and November, at 2 p. m.

The *Southern and Southwestern Railway Club* meets at the Kimball House, Atlanta, Ga., on the third Thursday in January, April, August and November.

The *Northwestern Railroad Club* meets at the Ryan Hotel, St. Paul, on the second Tuesday of each month, at 8 p. m.

The *Northwestern Track and Bridge Association* meets at the St. Paul Union Station on the Friday following the second Wednesday of March, June, September and December, at 2.30 p. m.

The *American Society of Civil Engineers* meets at the House of the Society, 127 East Twenty-third street, New York, on the first and third Wednesdays in each month, at 8 p. m.

The *Western Society of Engineers* meets in its rooms on the first Wednesday of each month, at 8 p. m., to hear reports, and for the reading and discussion of papers. The headquarters of the Society are at 1736-1739 Monadnock Block, Chicago.

The *Engineers' Club of Philadelphia* meets at the House of the Club, 1122 Girard street, Philadelphia, on the first and third Saturdays of each month, at 8 p. m., except during July and August.

The *Boston Society of Civil Engineers* meets at 715 Tremont Temple, Boston, on the third Wednesday in each month, at 7:30 p. m.

The *Engineers' Club of St. Louis* meets in the Missouri Historical Society Building, corner Sixteenth street and Lucas place, St. Louis, on the first and third Wednesdays in each month.

The *Engineering Association of the South* meets on the second Thursday in each month, at 8 p. m. The Association headquarters are at The Cumberland Publishing House, Nashville, Tenn.

The *Engineers' Society of Western Pennsylvania* meets in the Carnegie Library Building, Allegheny, Pa., on the third Tuesday in each month, at 7.30 p. m.

The *Technical Society of the Pacific Coast* meets at its rooms in the Academy of Sciences Building, 819 Market street, San Francisco, Cal., on the first Friday in each month, at 8 p. m.

The *Association of Engineers of Virginia* holds informal meetings on the third Wednesday of each month, from September to May, inclusive, at 710 Terry Building, Roanoke, at p. m.

The *Denver Society of Civil Engineers* meets at 36 Jacobson Block, Denver, Col., on the second Tuesday of each month except during July and August.

The *Montana Society of Civil Engineers* meets at Helena, Mont., on the third Saturday in each month, at 7.30 p. m.

The *Engineers' Club of Minneapolis* meets in the Public Library Building, Minneapolis, Minn., on the first Thursday in each month.

The *Canadian Society of Civil Engineers* meets at its rooms, 112 Mansfield street, Montreal, P. Q., every alternate Thursday, at 8 p. m.

The *Civil Engineers' Club of Cleveland* meets in the Case Library Building, Cleveland, O., on the second Tuesday in each month, at 8 p. m. Semi-monthly meetings are held on the fourth Tuesday of each month.

The *Engineers' Club of Cincinnati* meets at the rooms of the Literary Club, No. 24 West Fourth street, Cincinnati, O., on the third Thursday in each month, at 7.30 p. m. Address P. O. Box 333.

The *Engineers' and Architects' Club of Louisville* meets in the Norton Building, Fourth avenue and Jefferson street, on the second Thursday each month at 8 p. m.

The *Western Foundrymen's Association* meets in the Great Northern Hotel, Chicago, on the third Wednesday of each month. S. T. Johnston, Monadnock Block, Chicago, is secretary of the association.

The *Engineers' Club of Columbus*, (O.), meets at 12½ North High street, on the first and third Saturdays from September to June.

The *Engineers' and Architects' Association of Southern California* meets each third Wednesday of the month in the Hall of the Chamber of Commerce, Los Angeles, Cal.

The *Engineers' Society of Western New York* holds regular meetings the first Monday in each month, except in the months of July and August, at the Buffalo Library Building.

The *Civil Engineers' Society of St. Paul* meets on the first Monday of each month, except June, July, August and September

The *Engineers' Society of Western New York* meets on the first Monday of each month at the Society's rooms in the Buffalo Library.

Engineers' Club of Cincinnati.

At the June meeting of the club, Mr. G. W. Kittredge read a paper giving some "Incidents in connection with the cyclone at St. Louis on May 27," which contained a vivid account of the storm and much information of the destruction wrought by it, especially to railroad property, and recited many peculiar and wonderful features illustrating the force of the wind.

The Literary Club submitted a form of lease for the use by this club of its rooms which it is fitting up at its new quarters on Eighth street. This was approved and the President and Secretary authorized to execute the same on behalf of the club.

The Executive Board reported that preliminary arrangements had been made for an outing to be held on the 27th inst., which was concurred in by the club and the Board instructed to perfect its arrangements and announce the outing. The outing took place as announced and consisted of a visit to the works of the Laidlaw-Dunn-Gordon Co., at Elmwood, the works of the Proctor & Gamble Co., at Ivorydale, the new shops, etc., of the Street Railway Co., at Chester Park (where lunch was served), the Hunt street power house of the Street Railway Co. and the Pennsylvania Bridge and the Suspension Bridge, both of which are being remodeled. A large number of the members of the club and invited guests participated.

PERSONAL.

—Mr. O. McGowan, Superintendent of the Northern Division of the St. Louis Southwestern, died on July 1, at Clarendon, Ark.

—Mr. H. S. Stirling has been appointed General Freight Auditor of the Union Pacific, to succeed Mr. A. S. Van Kuran, deceased.

—Mr. Charles F. Conn, formerly auditor of the Old Colony Steamboat Company, has been elected Treasurer of the new Boston Terminal Company.

—Mr. C. A. Barnard has been appointed General Freight and Ticket Agent of the Ohio Southern & Lima Northern. His headquarters will be at Springfield, O.

—Mr. Walter G. McRae has been appointed Chief Engineer of the Carolina, Tennessee & Ohio road, which is to be built between Wilmington and Southport, N. C.

—President T. C. Mendenhall, of the Worcester Polytechnic Institute, has been appointed to the Massachusetts Highway Commission, to succeed Mr. G. O. Perkins.

—Mr. F. K. Hunger has been appointed Superintendent of the Knoxville, Cumberland Gap & Louisville, in place of Mr. L. F. Wayne. The road is now operated by the Southern.

—Mr. Charles A. Shinn, formerly Chief Clerk and general bookkeeper in the Auditor's office of the Wheeling & Lake Erie, for four years, has been promoted to be Assistant Auditor.

—Mr. W. H. Fulton, until recently Private Secretary to General Passenger Agent T. J. Anderson, of the Seaboard Air Line, has been promoted to be Assistant Ticket and Passenger Agent in Atlanta.

—Mr. Henry Coope, Assistant General Freight Agent of the Baltimore & Ohio Southwestern, has resigned that office. He has been with the Ohio & Mississippi and Baltimore & Ohio Southwestern roads for 31 years.

—Mr. T. L. McKeen, recently with Isaac G. Johnson & Co., Spuyten Duyvil, N. Y., manufacturers of the Thurmond car coupler, has become connected with the Trojan Car Coupler Co., with office at 49 Wall street, New York City.

—Mr. S. T. Prince, of Mobile, has been appointed Receiver for the Seaboard Railway Company of Alabama, in which a controlling interest was held by the lumber firm of Lombard & Ayres, of New York, now also in Receiver's control.

—Mr. George R. Blanchard, Commissioner of the Joint Traffic Association, has been granted a leave of absence and sailed from New York this week on the steamer St. Paul for Europe. He expects to remain abroad until September.

—Mr. E. P. Wilson has been re-elected Commissioner of the Cincinnati Freight Bureau. The Treasurer reports that the expense to the Chamber of Commerce of maintaining the Bureau has been much less during the past year than ever before.

—Mr. William M. Chase, Division Freight Agent on the Northampton Branch of the New York, New Haven & Hartford, has been appointed General Agent of the Central States Dispatch Freight Line, at Boston. This line operates over the New Haven Road.

—Mr. John A. Sargent has been appointed General Freight Agent of the Kansas City, Pittsburg & Gulf. Mr. Sargent was formerly Assistant General Freight Agent of the Kansas City, Fort Scott & Memphis. The office is a new one, the company having, heretofore, had a General Freight and Passenger Agent.

—Mr. Sanford Keeler, recently General Manager of the Saginaw, Tuscola & Huron road in Michigan, has been appointed General Manager of the Interurban Electric Railroad, at Saginaw, Mich. Mr. Keeler was formerly Division Superintendent of the Flint & Pere Marquette road.

—Mr. W. E. Guerin, now Vice-President and General Counsel of the Columbus, Sandusky & Hocking Road, has been elected President of the company. He formerly held this office, but resigned during the Receivership. Mr. N. Monsarrat, formerly President of the Cleveland, Akron & Columbus, was appointed one of the Receivers and upon the organization of the new company became President and General Manager. He now retires on account of a change in the financial control of the road.

—Captain Joseph Green, who has been Master Mechanic of the Southern railroad shops in Columbia, S. C., for some years, has resigned to accept the position of Superintendent of Motive Power and Machinery of the South Carolina & Georgia road. He served as an apprentice in the present Southern shops, then the Charlotte & South Carolina shops, and remained there until 1868, when he became General Foreman of the Raleigh & Gaston shops. This position he filled for 13 years, and then returned to Columbia in 1881, to become Master Mechanic of the Charlotte, Columbia & Augusta shops now the Southern shops.

—Mr. Henry L. Morrill, Second Vice-President and General Manager of the St. Louis & San Francisco, who has been succeeded by Mr. B. F. Yoakum, has been General Manager of the road since June, 1886, becoming Vice-President in the following year. He is now about 60 years old and has held offices since 1870 in the construction and operating departments of many important roads. He was General Manager of the New York, Chicago & St. Louis in 1881 and 1882 during its construction. In the latter year he went to the Boston, Hoosac Tunnel & Western, remaining there until he went to the St. Louis & San Francisco.

—Mr. Arthur Sewall, who was nominated at Chicago last week to be Vice-President of the United States, has, like Mr. Garret A. Hobart, the Republican nominee for the same office, for many years held important railroad offices. He has been a Director of the Maine Central since 1875 and for a time was President of the company. He has also been a Director of the Mexican Central, the Boston & Maine, the New York & New England, the Portland & Rochester and various subsidiary corporations of the Atchison. He is the head of ship-building firm of Arthur Sewall & Co., at Bath, Me., is President of the Bath National Bank and of various manufacturing corporations.

—Col. James F. How, formerly Vice-President and General Manager of the Wabash road, died at St. Louis last week after a brief illness. Colonel How was in Europe at the time of the heavy storm at St. Louis in May, in which his home was destroyed, and he immediately returned to this country. Since reaching St. Louis he had been unwell. Colonel How's earliest railroad position was as a clerk on the Northern Missouri road in 1869. He was Secretary of the St. Louis, Kansas City & Northern about 1870, and in 1879 became Secretary of the Wabash, St. Louis & Pacific. He was afterward Vice-President of that road and later again Assistant Secretary, and in 1883 Assistant Secretary of the Missouri Pacific. When the Wabash Western was formed in 1887 he became Secretary and Treasurer of that road and was elected Vice-President of the Wabash at the time of its organization.

—The appointment of Mr. B. F. Yoakum as General Manager of the St. Louis & San Francisco road was announced on Thursday of last week. Mr. Yoakum is at present Vice-President and General Manager of the Gulf, Colorado & Santa Fe, the Texas line of the Atchison, Topeka & Santa Fe. He has been General Manager of the road since 1893. Formerly he was for many years with the San Antonio & Aransas Pass line during its construction period. He was associated with Mr. Rob-

inson, the new President of the St. Louis & San Francisco, on that road during the brief time that Mr. Robinson held the office of President, and he left the company's service a few months after Mr. Robinson, when the control of the road was changed, and it was leased to the Southern Pacific. Mr. Yoakum held the office of Traffic Manager on the San Antonio & Aransas Pass for a long time, but he was also General Manager and Receiver at various periods.

ELECTIONS AND APPOINTMENTS.

California Eastern.—The following is a list of the officers of the new company: President, R. W. Woodbury; Vice-Presidents, D. G. Scofield and W. N. Byers; Treasurer, I. B. Newton, and Secretary, R. S. Seibert.

Chicago, Hammond & Western.—The officers of this company are as follows: J. P. Lyman, President and General Manager; K. H. Bell, E. Chapman, W. P. Jenkins, Vice-Presidents; J. A. Ostrom, Secretary and Treasurer; C. C. Chace, Auditor; Horace Tucker, Traffic Manager; W. E. Green, General Superintendent; C. W. Hotchkiss, Chief Engineer.

Chicago, Rock Island & Pacific.—F. C. Smith has been appointed Division Superintendent Western Division, west of Missouri River, with office at Colorado Springs, Col., vice R. B. Agnew.

Columbia, Newberry & Laurens.—C. M. Tew has been appointed Auditor, with office at Columbia, S. C., vice W. A. Reach.

Columbus, Sandusky & Hocking.—W. W. Guerin succeeds N. Monsarrat as President. Mr. Guerin has been Vice-President of the company.

Denver, Lakewood & Golden.—W. F. R. Mills has been appointed General Superintendent and Purchasing Agent, vice J. B. McCormic, previously General Superintendent.

Eagles Mere.—Joel H. DeVictor has been elected Vice-President, with office at Philadelphia, vice John R. T. Ryan.

Elkton & Middletown.—The annual meeting of the stockholders was held at Elkton, Md., on July 7. The old Board of Directors was elected, as follows: Jacob Tome, Henry Welsh, S. C. Rowland, Samuel Rea, George S. Wooley, John P. Greene and H. H. Brady.

Florence & Cripple Creek.—W. F. Jones has been appointed Auditor, vice W. Kopfer.

Georgia Midland.—The reorganized staff has been announced by Vice-President Baldwin, of the Southern. All the old officers remain with division titles instead of general titles. Mr. C. W. Chears and Mr. C Jones are retained as Superintendent and Division Freight and Passenger Agent, respectively. The line between McDonough and Columbus will be known as the Columbus Division of the Southern. The following officers will have their headquarters at Columbus: C. W. Chears, Superintendent; Clifton Jones, Division Freight and Passenger Agent, and D. E. Williams, Jr., Commercial Agent.

Grand Trunk.—The store department at Detroit, Mich., has been abolished and all the clerks except four, released, including Mr. Lorimer, the general storekeeper, who has been with the Grand Trunk for 37 years. For the last 25 years he has been at the head of the store and purchasing department at Detroit. Mr. Lorimer declined the offer of another position with the company.

Little Kanawha Valley.—At a meeting of the stockholders of this road, held at the company's offices in Parkersburg, W. Va., on July 11, the following were elected directors: Judge John J. Jackson, G. E. Smith, R. Rector, W. A. McCosh, H. C. Jackson, Governor William A. MacCorkle, W. E. Fleming, J. M. Hamilton and J. S. Withers. The directors immediately organized by electing Henry C. Jackson, of Parkersburg, W. Va., President; J. S Withers, of Parkersburg, Vice-President; William A. MacCorkle, Secretary and Treasurer, and V. B. Archer, General Counsel.

Louisville, Evansville & St. Louis.—The position of Assistant General Freight Agent has been abolished, and C. D. Morris, who has filled the position, has been made chief clerk to the General Freight and Passenger Agent.

George A. Clark, who has been Passenger Car Distributor of the "Big Four" has resigned to go to this road in charge of the Car Accountant's office.

Mount Lowe.—A meeting of the creditors of the company was held at Pasadena, Cal., last week, to elect three of the creditors as directors to represent all the creditors. The resignations of T. P. Lukens, P. M. Green and A. P. West were accepted and their places filled by J. M. Johnson, I. B. Newton and F. L. Baker. The new board organized by electing Prof. T. S. C. Lowe, President; I. B. Newton, Treasurer, and F. L. Baker, General Manager.

North Carolina.—The stockholders of this road, now a division (extending from Goldsborough via Raleigh and Greensboro to Charlotte, N. C., 300 miles) of the Southern Railway under a 99-year lease, held their annual meeting at Greensboro, N. C., last week. The state of North Carolina owns two-thirds of the stock of the road, and the following directors were nominated on the part of the state: S. B. Alexander, W. C. Maxwell, L. S. Overman, V. E. Turner, B. F. Spruill, J. J. Young, C. W. Johnston. P. B. Ruffin, who has held the position for over 25 years, was re-elected Secretary and Treasurer, with headquarters at Burlington, N. C.

Northern Pacific.—Frederick C. Salter, of Buffalo has been appointed General Agent of the road, with headquarters at New York City.

Peoria, Decatur & Evansville.—H. W. Matters having resigned, W. J. Lewis has been appointed Purchasing Agent, with headquarters at Evansville, Ind. Appointment effective May 18, 1896.

Quakertown & Eastern.—The officers of this company incorporated last week are: John Jameson, Bloomsburg, Pa., President, and John J. Ott, Pleasant Valley, Pa.; H. H Souder, Quakertown; James H. Shelley, Richlandtown; Henry S. Funk, Springtown; H. C. Coleman, Norristown; David A. Fluck, Richlandtown, and Henry S. Mill, Springtown, Pa.

St. Louis & Hannibal.—J. C. Thurman having resigned the position of General Auditor to accept service elsewhere, J. M. Worland has been appointed to fill the vacancy.

St. Louis & San Francisco.—At a meeting of the Board of Directors in New York last week the following officers were elected: D. B. Robinson, President; B. F. Yoakum, Vice-President and General Manager; Frank H. Hamilton, Secretary and Treasurer; E. C. Henderson, General Counsel; L. F. Parker, General Solicitor; A. Douglass, General Auditor; Horace Porter, Chairman of the Board of Directors. All the officers of the company will have their headquarters in St. Louis.

Tennessee, Virginia & Georgia.—The incorporators of this company are Edward A. Richards, Hoke Smith, W. S. Witham, G. V. Gess, J. W. English, of Atlanta, Ga.; Alonzo B. Cornell, Henry A. Blake, Henry E. Knox, Jas. Gilfillan, Francis M. Ferguson, of New York City.

Wheeling & Lake Erie.—Charles H. Shinn has been appointed Assistant Auditor of the company.

White River Valley & Western.—The incorporators of this company are G. A Haggerty, President; G. H. Candee, Lowell, Mass.; Charles Babbridge, Brooklyn, N. Y.; Egbart Guernsey, New York; George P. Bassett, Cincinnati; Nathan B. Williams, Jack Walker, W. H. Whitlow, W. I. Cook, Fayetteville. The headquarters will be at Fayetteville, Ark.

RAILROAD CONSTRUCTION,

Incorporations, Surveys, Etc.

Allegheny Valley.—The actual work of construction has been commenced by the company on the new branch from Brookville, Pa., on its low-grade division to the Hayes timber tract. This branch road was recently incorporated as the Brookville Railroad and will be about 12 miles long, going through rich timber and coal lands, It is expected that the line will be completed by October.

Ashboro & Montgomery.—The tracklaying has just been commenced on this road, which is practically an extension of the Aberdeen & West End road of North Carolina, being owned by the same interests. The grading on the line was begun in May last, J. T. Pruden, of Ashboro, being the contractor. It is being built from Star, the terminus of the Aberdeen & West End road, westerly through Randolph County to Ashboro, the county seat, a distance of 23 miles. The new road connects the Seaboard Air Line and the Southern Railway. A. F. Page is President of the company and E. G. Segroves, of Asberry, N. C., is Chief Engineer.

Ashland & Wooster.—This proposed road is to extend from Sandusky to Cadiz, O., and is intended to open up the coal fields now being developed in the southwestern part of the state.

Buffalo & St. Mary's.—The tracklaying on this road in Elk County, Pennsylvania, was finished last week. This completes a line of 35 miles between St. Mary's and Clermont, Pa. It was built by the owners of the St. Mary's & Southwestern and Clarion River roads in Northern Pennsylvania from Shawmut through St. Mary's to Clermont, where a connection is made with the Western New York & Pennsylvania.

Butler & Pittsburg.—The contract for building the 30 miles from Braddock, Pa., to the Monongahela River, Pa., has been awarded to C. I. McDonald, of Pittsburg, and work will be begun immediately. Mr. McDonald has sublet a contract for grading 10 miles south of Butler, to the Ferguson Contracting Co., of Corning, N. Y.; for the 2 miles north of the Allegheny River, to T. A. Maselli, of Columbus, O., and for all the masonry, exclusive of tunnel work, to Grady, Coda & Co., of Beaver Falls, Pa. The contract of Mr. McDonald includes the grading and masonry work to the Monongahela River and involves about 1,250,000 cu. yds. of earth. The contract price is about $700,000. It is said that 3,000 men will be employed on the work.

Centralia & Chester.—The extension of this road to Salem, Ill., has been completed and it is expected that trains will be running on the line this week or next. The new line is about 14 miles long and is an extension of the present line now in operation to Centralia. The total length of the road with the new line will be 75 miles, the western terminus being at Evansville.

Central of New Jersey.—Burke Bros., of Scranton, have begun work on the extension at the old Enterprise breaker, which will be carried from that point to Port Blanchard, Pa. This will form a connection with the Erie & Wyoming Valley, and will give the company an independent line to Scranton, and will also give the Erie & Wyoming Valley an entrance into Wilkes-Barre over the Central tracks. The immediate object of the branch is the coal traffic.

Charleston & Macon.—Five parties of engineers are in the field surveying the first division of this road from Charleston to Allendale, S. C., about 80 miles. The work is being done under the direction of A. W. Swanitz, Chief Engineer of the Security Construction Co., which is to build the road. Mr. Swanitz was recently the Chief Engineer of the New Orleans & Western road. W. B. Strang & Co., of 15 Wall street, New York City, have the contract for grading this division of the line and will probably shortly let sub-contracts. The line is to connect with the Carolina Midland road at Allendale or Greenwood, the point of intersection not having been finally determined.

Chester & Becket.—The Massachusetts Railroad Commissioners will give a hearing on the petition for the formation of this company, at their office, 20 Beacon street, Boston, this week. The new road will extend between the towns named in the title and connect with the Boston & Albany at Becket. The new road will reach granite quarries at Chester, and will be five miles long. General Crane, of Dalton, Mass., is one of the projectors.

Chicago, Hammond & Western.—This road is in operation between Blue Island, Ill., and Whiting, Ind., making connections with about 15 of the roads entering Chicago from the east and south. There is in course of construction a line from Blue Island, Ill., north and east, crossing all the western and southern railroads to a point on Lake Michigan, making a complete belt line.

Corralitos.—It is said that the projectors of this road south of El Paso, Tex., into Northern Mexico have arranged the terms of the modified concession with the Mexican Government and secured its consent to the transferring of the concession, which was originally granted to Luis Huller. It is said that important financial interests in New York City are interested in the building of the road, Judge T. S. Crosby, of El Paso, being the local Manager. The line extends into important mining districts in Northern Mexico, the proposed terminus of the line being at Corralitos, about 160 miles from El Paso. The line may be extended to Guerrero, about 300 miles from El Paso. It is claimed that the first division extends through fine agricultural and timber lands as well as a mineral district with excellent water power.

Easton & Northern.—The grading of the extension between Thirteenth street, Easton, Pa., and a point in Palmer Township, near Edelman's crossing, will be started on Aug. 1 by Miller & Miller, contractors, of Nazareth, Pa. The road is now operated by the Lehigh Valley, and the extension will give it a better connection with that company's tracks.

Eureka & Klamath River.—An extension of this railroad is now in course of construction, from a point on the north bank of Mad River, north of Vances, north through the town of Arcata, thence to the town of Samoa, the proposed terminal on Humboldt Bay, and opposite Eureka. The proposed extension is 10 miles long. Of this about seven miles was built between Jan. 1 and July 1, 1896.

Florida Southern.—The change of gage on this division of the Plant System from 3 ft. to standard was made on Saturday last, July 11. The Florida Southern is that division of the Plant System running from Palatka, through Ocala and Leesburg to Brooksville, Fla., about 140 miles. The road has an important fruit traffic and with the change of gage an improved train service will be put on, which it is thought will save over six hours on this division of the road.

Glen Jean, Lower Loup & Deepwater.—Trouble over the right of way at the initial point of this road is seriously delaying the construction work. The company was recently incorporated in West Virginia to build from Glen Jean on the Dunn loup Branch of the Chesapeake & Ohio north along various creeks to Deepwater, and across the Kanawha River to a connection with the Kanawha & Michigan road, a distance of 16 miles. The road when built will open up a soft coking coal district. Arrangements have been made in Chicago for funds to build the line, and it is stated that the building of the road will be commenced as soon as the right of way can be secured. The first six miles of the road will involve some heavy work, but there are no tunnels, and the last six miles will be fairly easy work. The only bridge will be that across the Kanawha River. The cost of construction is estimated at $556,000, including the bridge across the Kanawha River, and the bonds of the company for this amount have been sold in Chicago. The Secretary is J. W. Davis, of Coffman, W. Va., and the Chief Engineer is J. M. B. Lewis, of Lynchburg, Va.

Greensboro & Ore Hill.—This road, narrow-gage, is being graded between Greensboro and Ore Hill, N. C., 10 miles. The road is being built by the Greensboro Iron & Steel Co., which will begin regular operations some time this month. The line is to be used chiefly in hauling iron from the mine at Ore Hill to the furnace at Greensboro. It will probably also be equipped to haul passengers and general freight. Rails have been ordered from the Carnegie works and locomotives and freight cars will be bought. Heal M. Worth is the General Manager of the company.

Greenville & Hudson.—About one-fourth of the construction work on this branch of the Lehigh Valley in Jersey City is reported completed. So far no track has been laid. The length of the line is little over 2¼ miles in length. It will extend through Jersey City and will be a connecting line of the Lehigh Valley. The following firms have contracts on the road: John Shields, Betz Building, Philadelphia; Lehigh Construction Co., South Bethlehem, Pa.; George W. Rogers & Co., 44 Broadway, New York City; Elmira Bridge Co, Elmira, N. Y.; Holmes & Cogan, 953 Garfield avenue, Jersey City, N. J. Walter G. Berg, of Jersey City, Principal Assistant Engineer of the Lehigh Valley, is Chief Engineer of the new branch.

Hoxie, Pocahontas & Northern.—Surveys for this short road in Northeastern Arkansas have now been completed and the active work of construction will be commenced immediately. The charter for the line was only issued a few months ago, but it is already under contract to the Hartford Construction Co., of Little Rock, Ark., of which W. B. Worthen, who has been interested in railroad building in Arkansas for many years, is President. The grading work will be very light, the country through which the road is to be built being almost level. The route is from Hoxie north through Walnut Ridge to Pocahontas, the county seat of Randolph County, one of the northern tier counties of Arkansas. The distance is 15 miles. The St. Louis, Iron Mountain & Southern and Kansas City, Fort Scott & Memphis intersect at Hoxie The officers state that the money to build the road has been secured. The President of the company is Maxwell Coffin, of Little Rock, Ark., and the Chief Engineer is N. S. Woods, of Hoxie, Ark.

Hutchinson & Southern.—An extension is to be built from Cameron, Kan., near the southern state line, to Pond Creek, Okla. The contract has been given to W. A. Bradford, Jr., & Co.

Kansas City, Pittsburgh & Gulf.—The building of the mountain section, which is to extend 25 miles to the north of Horatio, Ark., is being rapidly pushed forward. The work has been let to five contractors, and 3,000 men are now employed.

Lima Northern.—Tracklaying has been completed near Adrian, Mich. This is the point to which the road was originally projected, but the plans have been changed, and it will now be extended to a junction with the Wabash road at Detroit Junction. Grading is now completed and tracks laid on the entire road between Lima, O., and Adrian, Mich., and regular trains will shortly be put on between Lima and Detroit, entering the latter city over the Wabash tracks.

Maine Central.—The company is laying about 40 miles of new rails on various divisions of the road this summer, using a 70 lb. rail, which has been adopted as standard by the company. Early in the spring about 15 miles of second track was built, but at present no work of this kind is being done. A newspaper report that 90-lb. rails were being laid on the road to Bar Harbor is erroneous.

Manitoulin & North Shore.—Engineers have recently gone over the route of this road in Ontario to estimate the probable cost of construction, and it is thought that at an early date work will be commenced. Mr. Jas. Hasketh, of Toronto, Ont., is the engineer in charge.

Mexican-Guatemala Colonization.—E. B. Barry, of Philadelphia, General Manager, has just returned from Mexico, where he has been perfecting the plans of the company, in which Western and Eastern capitalists are interested. The company proposes to build a line along the west coast of the state of Cluapas to a point

within 18 miles of the Guatemala frontier, a distance of 200 kilometers, and a branch line into the interior. The Mexican Government has granted a subsidy of $6,000 per kilometer on the coast line and of $8,000 per kilometer on its branch line. Besides this it has been granted a concession by the state of Cluapas of $1,000 per kilometer. The company is capitalized for $10,000,000 and will soon issue $5,000,000 of bonds.

Mexican Roads.—Manuel Algara has a concession for the construction of a road from the town of Tezuitlan, State of Puebla, Mex., to Perote, State of Vera Cruz. Work must be commenced within 18 months.

Minneapolis & St. Louis.—The new branch, 18 miles long, from Winthrop, on the main line, to New Ulm, Minn., has been completed. It will be called the New Ulm branch, and will give New Ulm an outlet to the St. Paul and Minneapolis and a new route to Duluth.

Mobile, Jackson & Kansas City.—Letters have been recently published in the Mobile papers from the officers of this company, who are now in England, stating that they have made financial arrangements for constructing the road. The project is an old one, and several years ago some miles of road bed was graded out of Mobile, Ala. The route is from Mobile northwest to Jackson, Miss., and a final location has been made the entire distance. The contract for the construction work as a whole has been let to the Gulf City Construction Co., of Mobile, and there appears to be good prospects for much work to be done this year. The work will not be very difficult, the maximum grades being 52.8 ft. to the mile and the maximum curves 4 deg. There is one drawbridge to be built 290 ft. long with approaches and three fixed spans of 125 ft. each. There will also be much trestling. The officers are F. B. Merrill, President; F. W. Nicol, Chief Engineer; R. H. Stratton, Secretary, all of Mobile.

Montana Central.—The trestles and bridges at Wicks Hill and Butte Hill are being replaced by solid fills with masonry arches. A new steel bridge is to take the place of the high trestle at Corbin, Mont., and the masonry work on the piers is now under way. The bridge will be 100 ft. high and 760 ft. long. Another improvement just completed is the cutting down of the grades between Helena and Clancy, from 80 ft. to 44 ft. to the mile. Nearly two miles of sidings have been built this year between Great Falls and Butte.

Mt. Jewett & Smethport.—Contractor McComb has about completed this line from Mt. Jewett to Gallup, Pa., a distance of nine miles. B. F. Hazelton, the principal owner of the line, has agreed to extend it on to Smethport, Pa., providing the people of that town secure him the necessary right of way. This will probably be done.

New Roads.—The building of the new railroad for hauling lumber to Truckee, Cal., from the large lumber forests in the vicinity of Independence and Webber lakes, will soon be begun.

Northern Pacific.—A large amount of work is to be done in rearranging and enlarging the yards east of Spokane, Wash. The trestle near that point is also to be filled up. Fully 150 men will be employed until fall. It is estimated that the total cost will be not far from $250,000.

Ohio River & Charleston.—It has been definitely decided to build a branch line of this road from Blacksburg to Spartanburg, S. C., via Gaffney City, Clifton and Glendale. The survey was begun last week.

Patten & Sherman.—President A. A. Burleigh, of Houlton, Me., has been in New York this week to order rails and other construction material for this road. The work of grading is now about completed to Patten, about 10 miles east of Sherman, Me., where the new road branches off from the main line of the Bangor & Aroostook. The grading is being done by the company's forces, no contracts being let. It is expected to have the track-laying completed promptly and the line opened for operation by September. A further extension of the line beyond Patten for six or nine miles has been proposed, but the officers of the company have not decided definitely to construct this new line.

Peoria & Pekin Union.—The second track work on this line, between Peoria and Pekin, Pa., about 10 miles altogether, is now practically completed. The only work remaining to be done is the building of the last bridge on the line and the laying of the track across the structure. It is expected that the new track will be ready to be put in use in a few days.

Philadelphia & Reading.—Several hundred tons of 80-lb. rails are being put in the track of the mountain section on the Gettysburg & Harrisburgh branch between Hunter's Run and Starners, Pa., to replace 56-lb. rails.

Pittsburgh & Northwestern.—The preliminary surveys for this road between Pittsburgh and Newcastle, Pa., have been recently completed. At present no active work is being done on the project, but a meeting of the Board of Directors will be held at Pittsburgh this week to decide upon plans for the construction of the line. The distance between the points named is about 47 miles, and the route surveyed goes through Coraopolis, Monaco, Beaver Falls and New Castle Junction. The maximum grade is 25 ft. to the mile, and the maximum curvatures 6 deg. The officers of the company are: William Flinn, President; W. C. Lynne, Secretary and Treasurer, and J. W. Patterson, Chief Engineer, all of Pittsburgh, Pa. Mr. Flynn is well-known from his connection with street railroads in Pittsburgh and other large corporations in that city.

St. Johns & Lake Eustis.—The line has now been made standard gage, the change from the 3-ft. to standard gage having been made on July 11 last. The road is operated as one of the Plant lines and is about 47 miles long, extending from Astor to Lane Park, Fla.

St. Joseph Valley.—An extension is so be built from Berrien Springs to Benton Harbor, Mich., and will reach a rich portion of the western Michigan fruit belt. Work will be begun at once and it is hoped that the earnings of the new line will put the entire road on a paying basis.

St. Louis, Peoria & Northern.—The company is building a connecting line from Mount Olive to Litchfield, Ill., and when completed the company will run through trains from St. Louis to Springfield.

Sand Creek & Sulphur Springs.—This company has been recently incorporated at Pine Bluff, Ark., with a capital stock of $20,000. The directors are Frank Kendall, George W. McLead and M. F. McWilliams. The proposed road is to extend from a point on the Mississippi Valley & Malvern road to Sulphur Springs, in Jefferson County.

This company has been incorporated in Arkansas to build a road from a point on the Mississippi Valley & Malvern road, where it crosses Sand Creek to a point at or near Sulphur Springs in Jefferson County, Ark. The stockholders are N. T. White, Frank Kendall, Geo. W. McLead, Ed McGann and M. F. McWilliams. The directors are Frank Kendall, Geo. W. McLead and M. F. McWilliams.

San Francisco & San Joaquin Valley.—Grading from the north to the San Juan River has been nearly completed, and tracklaying will be completed to the river by July 25, when the bridge will have been finished. The contract for grading from the river to Fresno, Cal., has been let to Grant Brothers and J. D. McDougald, and they will place 150 teams at work next week, in addition to the force now at work. The grading will reach Fresno by Aug. 1, and the tracklaying will be finished by Aug. 15.

Silverton Northern.—This road has recently been completed for six miles north of Silverton, Col., through the mountains of San Juan County, Col. The present terminus is at Eureka, but it is proposed to extend the road to Mineral Point, five miles further. The line has been built by Otto Mears, the builder of the Silverton road and the Rio Grande Western, and reaches a gold producing district. North of Silverton the line follows the Animos Valley, crossing the river as Howardsville and again at Eureka. It is expected that the line will be finished to Mineral Point by October next. The estimated cost of the road is placed at $600,000, a considerable part of the cost being avanced by the mining companies, which will be reached by the track of the new line. A further extension from Mineral Point to Lake City, 25 miles further north, is talked of, but on account of the heavy work which would be required, involving a tunnel three-quarters of a mile long, it is not likely that the line will be extended beyond Mineral Point at present. Fred Walson, of Denver, is President of the new company.

Southwest Arkansas & Indian Territory.—This road is being extended from a point three miles from Antoine, Ark., to the site of a new town to be known as Pine City, a distance of 10 miles, into Pike County, Ark. The grading has already been completed. With this new extension the road will be 35 miles long.

Stone Mountain.—Surveys are now being made on this line from Roaring River station on the Northwestern North Carolina road, a division of the Southern, north to Stone Mountain, about 18 miles. The location has been made for part of the way and the rights of way are now being secured, but there is nothing definite as to when the new line will be placed under construction. G. W. Hinshaw, of Winston, N. C., is the President of the new road.

Sumpter Valley.—Work has been begun on an extension from McEwen to Sumpter, in Baker County, Or. It is to be built before winter, and will probably be eventually extended into Grant County.

Toronto, Hamilton & Buffalo.—Mr. A. Piggott, of Hamilton, Ont., has been awarded the contract to build the spur line to connect the Grand Trunk and Toronto, Hamilton & Buffalo. The work will cost about $250,000, the time for completion being fixed at four months.

Upper Hudson.—The preliminary surveys of this line have recently been completed between Corinth and Palmer to Glens Falls, N. Y. The road will be about 14 miles long and will connect at both points with the Delaware & Hudson River road. At Glens Falls a bridge will be built to complete the connection. The road is constructed in the interests of a paper manufacting company to bring logs to its pulp mills. The New York State Railroad Commissioners have recently granted the company a certificate to construct the road, but it is not likely that any important work will be done this season.

Weyerhauser Lumber Co.—This company will, it is stated, build a road into Superior, Wis., during the present summer. A survey of the proposed line has been completed. The road will start at a point on Allouez Bay, where the syndicate has acquired terminal property, and run about 35 miles south by way of South Superior, penetrating the pine forests of the county and connecting by means of branches with the numerous logging streams.

White River Valley & Western.—Articles of incorporation of the company were filed in Arkansas last week. The route will be from Stillwell, I.T., on the Kansas City Pittsburg & Gulf, east to an intersection of the Iron Mountain road at Bald Knob, passing through Fayetteville, Carrollton, Batavia, Shiloh and thence to Bald Knob, in White County, being a distance of 250 miles. G. A. Haggerty, of Fayetteville, Ark., is President and Treasurer.

Electric Railroad Construction.

Atlantic City, N. J.—Local capitalists are considering the project of building a trolley line from Atlantic City to May's Landing, by way of Pleasantville, a distance of 15 miles.

Baltimore, Md.—Mayor Hooper has announced that he will sign the Central Railway ordinance, granting that company the right to build an electric line along some of the principal streets in Northeast Baltimore. The company's routes give street-car facilities to every neighborhood in Northeast Baltimore, and by transfer privileges access to every section of the city except the southwest. The tracks are to be completed and the cars running in 12 months.

The City & Suburban Railway Co. and the Metropolitan Co. also sought for an ordinance for the same route.

The work of erecting the trolley poles and stringing the wires for the purpose of changing the Druid Hill avenue line of the Baltimore Traction Company from a cable to an electric line is about completed. The power for running the line will be obtained from the Druid Hill avenue and Charles street power-houses.

Cleveland, O.—The Cleveland Electric Railway Co. will begin at once the extension of its line through Cedar Glens, northeast from the city limits for about one half a mile. The right of way for the entire route has been secured.

Cornwall, Ont.—Progress is being made on the Cornwall street line. Track-laying is going on, wiring has been begun and the power-house is nearly completed.

Dayton, O.—The Dayton Traction Co. opened its new line between Dayton and Miamisburg, a distance of about 12 miles, on July 1. The company will extend the road along the route of the Miami Canal toward Cincinnati.

East Bend, N. C.—It is stated that an electric railroad will be built between East Bend and Yadkins Shoals at a cost of $2,500. George W. Hinshaw, of Winston, N. C., is interested in the project.

Elmira, N. Y.—Right of way has been secured by the Elmira & Horseheads Street Railroad for an extension of its West Water street line.

Englewood, N. J.—The electric railroad from Fort Lee to Englewood, N. J., was opened for traffic on July 11. The road will eventually run to North Hackensack. This is the Palisades road and was originally projected as an electric road.

Green Bay, Wis.—The extension of the electric line of the Fox River Electric Railway Co. between Green Bay and DePere has been completed. The road is about three miles long, and 60-ft. rails have been used in the construction.

Jamaica, L. I., N. Y.—On July 10 a franchise was granted to the Long Island Electric Railroad Co. to lay tracks over that section of the Jamaica and Hempstead turnpike extending from Grand street to the eastern boundary of the village corporation. The company now has a franchise to run directly from the city of Brooklyn to the village of Hempstead.

Johnstown, Pa.—A survey is to be made for an electric line between this city and Ebensburg.

Joliet, Ill.—The Joliet Electric Street Railroad was sold July 6 to William McKinley, of Champaign, Ill., for $300,000. It is proposed to spend about $50,000 for repairs and new cars and to extend the road to New Lenox and Lemont.

Kalamazoo, Mich.—The building of an electric road from Battle Creek to Kalamazoo, 24 miles, is said to be assured. The road will run via Augusta, Galesburg and Comstock. From Augusta a four-mile branch will be built to Gull Lake. Major Downs, of Battle Creek, is at the head of the enterprise.

Long Branch, N. J.—Application has been made to the Board of Aldermen by the Atlantic Highlands, Red Bank & Long Branch Trolley Co. for a franchise to enter Long Branch. The tracks now run to the city limit.

Marion, Ind.—The power-house of the Clodfelter line from Marion to Anderson has been located at Fairmount. The building is to be 50 ft. × 70 ft. and constructed of brick and stone. In the building will be placed five boilers and two 375 H-P. engines.

Milwaukee, Wis.—The Milwaukee Electric Railway & Light Co. is tearing up its tracks on Wisconsin street preparatory to rebuilding that line.

Moncton, N. B.—The work of constructing the new electric street railroad line in Moncton is proceeding rapidly, and is to be in operation next month. The capital stock, as given in the *Railroad Gazette* of May 8, is $100,000.

Perth, Ont.—The by-law to enable the town of Perth to grant a bonus of $5,000 for an electric railway to run between Perth and Lennark was carried.

Philadelphia.—Chief Engineer Thayer, of the Fairmount Park Transportation Co., submitted a report July 10 on the progress of the work on the electric line. He stated that the road had practically all been graded through the West Park, the small driveway bridges about completed and work started on the bridge across the Schuylkill.

Richmond, Va.—A. E. Randle and associates, who will build an electric railroad from the city limits to "Overlook Inn," have sold bonds for about $300,000 for its construction, and announce that work will begin by Sept. 1.

Rutherfordton, N. C.—A company is being organized by Capt. Pearson and W. M. Justice, of Columbus, N. C., to build a narrow-gage electric road from Tryon through Polk County to Rutherfordton, N. C., where connection will be made with the Seaboard Air Line. The road will be from 25 to 40 miles long, according to route taken.

St. Louis.—The bond of the Midland Street Railway Co. for the franchise granting the company the privilege of extending its tracks to Creve Cœur Lake has been approved by the County Court.

Sarnia, Ont.—An electric railroad from Sarnia to Point Edward, and then to Wishbeach, a summer resort on the shore of Lake Huron, is being built. The town of Sarnia gave the company a bonus of $10,000.

Toronto, Ont.—At a meeting of the provisional directors of the Huron and Ontario Electric Railway Co. in Toronto recently, the route of the road was adopted. It is proposed to build through many of the larger towns in Ontario with main line four branch roads. Among the directors are: Messrs. M. McNamara, of Walkertown, President; Dr. Rollston, of Shelburne, Vice President; A. R. McK. Cameron, of Meaford, Secretary; J. M. Robeers, of Dungannon, Treasurer; J. W. Cents, of Port Perry; A. E. Scanlon, of Bradford.

West Troy, N. Y.—The Albany Railway Co. has been granted the right to build an electric line in some of the principal streets in West Troy.

Worcester, Mass.—It is proposed to build an electric road from Worcester to the top of Mt. Wachusett. The road will run through Holden and Princeton, along the west side of the mountain, to Westminster, and a branch from Holden to Rutland. If the project is carried out, at least 20 miles of road will be built.

GENERAL RAILROAD NEWS

Ann Arbor.—The earnings of the road for the first six months of this year, ending June 30, were $568,762; for the same period of 1895 they were $516,390, an increase of $52,372. The earnings by months for the period were: January, 1895, $81,073; January, 1896, $85,550; February, 1895, $70,466; February, 1896, $88,605; March, 1895, $93,897; March, 1896, $99,521; May, 1895, $83,023; May, 1896, $92,011; June, 1895, $99,317; June, 1896, $103,945. The increase has not been in any particular department.

Central of New Brunswick.—The sale of this road at foreclosure is advertised to take place on Aug. 18, at St. Johns, N. B. The road now in operation is 75 miles long, and the first mortgage bonds outstanding amount to $680,000. W. A. Lockhart, of St. Johns, is in charge of the sale of the property.

Chicago & South Side Rapid Transit.—The foreclosure sale of this road, the Alley Elevated, will take place on Sept. 16. It is ordered under a decree of Judge Haney.

Fort Worth & Denver City.—The Reorganization Committee, of which Gen. G. M. Dodge is Chairman, has found it necessary, because of the failure of the crops along the line of the road, to make a change in the reorganization plan. Instead of paying

in cash one past due 3-per-cent. coupon, this coupon will be funded with the other four past due coupons, and the provisions of the plan will be amended in conformity with this change. The committee has received deposits of first-mortgage bonds amounting to 98 per cent of the entire issue.

Illinois Central.—The company reports earnings for May as follows:

	1896.	1895.	1894.
Gross earn	$1,540,441	$1,651,833	$1,427 871
Oper. exp	1,222,585	1,074,014	1,053.823
Net earn	$317,856	$577,819	$374,048
P. c. exp. to gross	79¾	65	73¾
Net earn. 11 mos	6,322,228	5,357,413	6 091,045

Net earnings in May, 1893, were $553,617; in 1892, $404,428.

Lehigh Valley.—This company has created a car-trust loan of $500,000, bearing five per cent. interest, payable in 10 years, one-thirteenth of the total amount redeemable every six months. The loan was placed by Brown Brothers & Co., of New York.

Louisville & Nashville.—The following preliminary statement of the results of operations for the year to June 30 has been issued:

	1896.	1895.	Inc. or Dec.
Gross earn	$20,392,323	$19,275.994	I. $1,116,329
Oper. exp	13,460,330	12,277,773	I. 1,182,557
Net earn	$6 931.993	$6,998.221	D. $66,228
Other inc	406.621	363,273	I. 43,348
Total inc	$7,338.614	$7,361.494	D. $22.880
Net fixed charges	5.945,841	6.660,909	D. 715,063
Surplus	$1,392,773	$700,585	I. $692,188

Interest, rental and taxes for the current year were $5,577,827, against $5,583,064 previous year. Loss on Georgia Railroad and other roads, $136,739, against $198,289 in previous year. In the year ending June 30, 1895, $697,669 were charged as the balance of advances to the South & North Alabama Railroad Company, while this year the net earnings of that company amounted to $30,000. Sinking-fund payments amounted to $186,548, after all deductions, against $175,000 the previous year.

Louisville, Evansville & St. Louis.—The road now uses the St. Louis bridge for passenger and freight trains, but Receiver Jarvis has recently applied to the court for authority to operate a ferry from East St. Louis to St. Louis to transfer freight cars instead of sending them over the bridge. He claims that the saving over the bridge to will be considerable.

The court has also been asked to ratify a contract between the company and the Terminal Railroad Association of St. Louis for the use by the latter company of the Belt road about East St. Louis, which is owned by this road.

Lynchburg & Durham.—A decree for the sale of this road at foreclosure was issued by Judge Simonton, of the United States Circuit Court, at Asheville, N C., last week, on the petition of the Mercantile Trust Co., of New York City. The road is a leased line of the Louisville & Nashville, and the decree was issued with the assent of the attorney of that company. The lease is dated 1893 and is for 99 years. The company owns 115 miles of road extending from Lynchburg, Va., to Durham, N. C.

Macon & Birmingham.—The stockholders of this new company, which takes over the property of the company of the same name sold at foreclosure a few months ago, have authorized the issue of first mortgage bonds to the amount of $500,000, bearing five per cent. interest. The road was purchased at foreclosure by Parsons & Edwards, of Boston, and the new company was organized in May with Mr. F. M. Edwards as President and Julian R. Lane, of Macon, Ga., as General Manager, an office which he held with the old company.

Northern Pacific.—The attorneys of M. S. Paton, of New York City, and others of the Committee which purchased the Seattle, Lake Shore & Eastern, at foreclosure sale recently, have filed a petition with Judge Jenkins, of the United States Court at Milwaukee, asking for an injunction against the sale of the road. This is another effort to enforce against the Northern Pacic the alleged claim of the committee mentioned and the Seattle, Lake Shore & Eastern against the Northern Pacific. It is claimed that the present reorganization plan of the latter company is against the interests of the general creditors of the road.

Oregon Railway & Navigation Co.—The property of this company was sold, at Fairview, Ore., on July 9, to Messrs. A. Marcus, Charles C. Beaman and Charles S. Fairchild for the Reorganization Committee. The price was $9,437,250, the highest bid.

Port Royal & Augusta.—A decree for the sale of this road has been finally issued by the South Carolina courts, all the conflicting interests agreeing to the order, which thus ends a long litigation over the property. The date of the sale has not yet been finally fixed. It is very likely that the road will be purchased by Messrs. Samuel Thomas and Thomas F. Ryan, of New York City, who now control the Port Royal & Western Carolina road. These two roads were formerly operated as divisions of the Central of Georgia, but were taken out of that system after it was placed in Receivers' control and still later on independent receivers were appointed for each property. The Port Royal & Augusta entends from Port Royal to Augusta, about 112 miles and at that point is intersected by the Port Royal & Western Carolina, which extends north from Augusta.

St. Louis & San Francisco.—It is stated that the new company will continue to operate the St. Louis, Salem & Arkansas; Kansas Midland; St. Louis, Kansas & Southwestern, and Kansas & Southwestern Railroads on terms precluding any losses from their operation. Any deficit arising after operating expenses is to be borne by bondholders. The old lease was terminated on July 1.

San Antonio & Gulf Shore.—This road, 28 miles long, from San Antonio, Tex., east to Sutherland Springs, was sold by the Receiver, Henry Terrell, under order of the court on July 7. The only bidder was Oscar Bergstrom, who bid $150,000, the minimum fixed by the court. It is believed that the purchase was for the original stockholders, John Ireland and others.

Seaboard.—S. T. Prince, of Mobile, Ala., has been appointed receiver of this road, controlled by the firm of Lombard & Ayres, of New York City, which is now bankrupt. The road is 31 miles long from a point on the Alabama River near tidewater to a point in Washington County, Ala., called Tiger, and extends through the timber lands owned by the Seaboard Manufacturing Co., also one of the properties of Lombard & Ayres. The road is standard gage, and has a good equipment.

Seattle & International.—This company has been organized to operate the western lines of the Seattle, Lake Shore & Eastern, including all of the road west of the Cascade Mountains. The property has been transferred to the new company, the officers of which were given in our issue last week. The road controlled by the company begins at Seattle and runs northerly and easterly to Sallal Prairie, 62 miles, with a line commencing at Woodinville and going northerly to Sumas, near the International Boundary line, a distance of 101 miles. The capital stock of the new company is $2,400,000.

Spokane & Seattle.—This is the name of the company organized to take over the lines of the Seattle, Lake Shore & Eastern east of the Cascade Mountains, which comprise the road from Spokane westerly to Davenport, near the Columbia River, a distance of 47 miles. The capital stock of this company is $60,000. The names of the officers were published last week, the executive officers being the same as those of the Seattle & International, which operates the lines of the Seattle, Lake Shore & Eastern west of the Cascade Mountains.

Washington & Idaho.—This road, extending from Spokane to Cœur d'Alene, Wash., a distance of 158 miles, was sold on July 13, under foreclosure at Tekoa, Wash., to the Reorganization Committee of the Oregon Railway & Navigation Co., for $1,615,740. This completes the purchase of all branch lines of the Oregon Railway & Navigation Co, and the plans of reorganization will now be rapidly completed and the Receiver discharged.

West Jersey & Seashore.—A mortgage of $7,000,000 has been given by this road to the Commonwealth Title Insurance & Trust Company, of Philadelphia It is secured by bonds to that amount on the South Jersey roads of the Pennsylvania recently consolidated under this name.

Wisconsin Central.—The report of the Receivers for the half year ending Dec. 31 gives the following results of operations:

	1895.	1894.
Passengers carried	464,284	459,929
Tons freight carried	1,610.806	1,277,725
Rate per ton per mile (cents)	.0927	.0990
Average train load (tons)	197.91	163.14
Earn. per freight train (mile)	$1.82	$1.60

The fiscal results for the system during the same period compare as follows:

	1895	1894.
Gross earn	$2.374.931	$2,104,952
Oper. exp	1,502,202	1,441,685
Net earn	$872,129	$663,287
Total income	932 446	665,807
Interest payable	162,365	71,338
Taxes accrued	69 879	83,924
Rentals accrued	590,572	559,375
Miscellaneous	.....	1,137
Total charges	$822,816	$718,7 4
Surplus	109,630 (def.)	52,967

Electric Railroad News.

New York.—A certificate was filed on July 7 at Albany by the Metropolitan Street Railway Co., of New York, for an increase of capital stock from $16,500,000 to $30,000,000 in 300,000 shares, par value of $100 each. Of its authorized $30,000,000 there has been issued $28,366,600. This increase in capital is for the purpose of acquiring new property and the general improvement of the lines now under the company's management. Under the laws of the state of New York it is necessary to show actual assets before an increase in capitalization will be permitted.

Savannah, Ga.—In the United States Court, on July 6, Judge Speer signed a decree for foreclosure and sale of the Electric Railway Co. of Savannah. The report for the 16 months of the Receivership show net earnings in excess of $5,000, double that for the previous 16 months: but it requires about $35,000 to pay 16 months' interest on the bonds at five per cent. The authorized capital was $1,000,000; issued, $600,000.

Syracuse, N. Y.—A mortgage was filed at the County Clerk's office on July 8 given by the Rapid Transit Co. of Syracuse to the Guaranty Trust Co. of New York. The mortgage is to secure an issue of bonds for $3,250,000. The bonds are made payable in gold.

Toledo, O.—Papers have been filed consolidating the two local street railroad lines under the name of the Toledo Traction Company, with a capital of $6,000,000. The officers are: President, A. E. Lang; Vice-President, John B. Dennis; Treasurer, W. E. Hale; Secretary, Charles L. Wight.

Toronto, Ont.—The receipts of the Toronto Street Railway Co. amounted to $85,195 for the month of June. This sum is $728 less than the amount received for June, 1895, and $3,139 below that for June, 1894. The decrease is attributed to the extensive use of the bicycle.

TRAFFIC.

Traffic Notes.

The Attorney-General of the United States has taken an appeal to the higher court in his suit against the Joint Traffic Association, and the railroads composing it, which was recently decided by Judge Wheeler, at New York, in favor of the defendants.

The Lake Superior Car Service Association, managing the demurrage bureau at Duluth and West Superior, handled 18,677 cars in the month of June, which is about 86 per cent. more than the number handled in the same month of 1895. About half of these cars were handled on the Duluth side of the river and half on the other side.

The Plant System and the South Carolina & Georgia Railroad are indulging in a little rate war, and last Saturday excursions were run from Charleston, S. C., to Augusta, Ga., at fares of $1 per passenger. The South Carolina & Georgia, which is not a member of the Southern States Railroad Association, is said to have been the aggressor.

The managers of the Joint Traffic Association have ordered a reduction of 5 cents per 100 lbs.; that is, from 20 cents to 15 cents, Chicago-New York basis, on corn, taking effect July 15. The reduction made about ten days ago by the Chicago Great Western, followed by the other roads leading from the Missouri to Chicago, tended to turn a large proportion of the corn traffic through Chicago, and the reduction by the managers was necessary to produce reasonable equality between Chicago and the gateways south of that city. The combined reductions west and east make the rate now 26 cents per 100 lbs. on corn from Missouri River points to New York. The Illinois Central has reduced the rate on corn from Illinois and Iowa points to New Orleans from 18 cents per 100 lbs. to 14 cents. The J. T. A. circular reads:

The managers recommend that, effective on the 15th inst. and expiring with September 15, 1896, the rates upon corn only (not including corn products) be made on the Chicago New York basis of 15 cents per 100 pounds from points of shipment west of the western termini of the trunk lines, with the customary differences between the seaboard cities, but with the exception as to other destinations East or such termini noted below, it being understood that the rates from East St. Louis upon this basis may be applied as proportional rates from points upon the east bank of the Mississippi River north of East St. Louis to East Dubuque, Ill., inclusive, on corn coming from points west thereof.

The following is the exception thereto:

The present rates upon corn to the Western termini of the trunk lines and to points East thereof shall not be reduced, except to conform to the long and short haul clause of the Interstate Commerce Act, *i. e.*, the rates to the various seaboard cities shall be the maximum rates to intermediate points.

Chicago Traffic Matters.

CHICAGO, July 15, 1896.

For the first time in years the roads between the Missouri River and Chicago have adopted a flat rate on grain. To stop, so far as possible, the growing diversion of grain to the gulf ports, the Chicago Great Western, on July 7, reduced the local rate on coarse grain, Kansas City to Chicago, from 20 to 16 cents per 100 lbs. Two days afterward this rate was more than met by the Missouri Pacific and the Alton via St. Louis. The executive officers on all of the Chicago-Missouri River lines then held a special meeting and unanimously agreed to put in a flat rate of 13 cents on wheat and 11 cents on corn between the Missouri River and Chicago. These rates are now in effect. Before the grain dealers had recovered their breath came the surprising announcement that the Joint Traffic roads had been authorized to reduce the rate on corn, Chicago to New York, to 15 cents. This rate goes into effect to-day and is to be withdrawn Sept. 15. This makes a through rate of 26 cents on corn from the Missouri River to New York. It is generally believed that these reductions will have the effect of bringing a great deal of grain to this city and for export via New York. The roads to the gulf ports will undoubtedly make corresponding reductions to hold the traffic.

Between 50 and 100 delegates from the West to the National Educational Association meeting at Buffalo were delayed in Chicago last week on account of the refusal of the eastbound lines to accept the ticket orders of the Western roads one day after the agreed final date for the sale of these tickets by the Eastern roads. The delegates with the irregular orders arrived in Chicago, July 7, the final ticket-selling date being July 6. None of the Eastern lines would accept the Western orders, and the delegates were sent on to Buffalo at the expense of the Western roads.

Reports received by the Chairman of the Western Passenger Association show that during the month of June conductors took up ten mileage books and collected fare from wrongful holders of the same. Nine of the books were taken up on the Milwaukee & St. Paul.

Becoming suspicious that the deluded financial supporters of the Chicago Freight Bureau might awake from the hypnotic spell which he has cast upon them, Commissioner Iglehart has again buckled on his armor to fight the railroads on the ground of imaginary discrimination against this city This time the charge of discrimination is general. He has succeeded in getting the Board of Trade to appoint a committee, with himself at the head, to make a general investigation of the alleged charges of discrimination in rates. Iglehart's periodical outbreaks are due to an apprehension that the few mercantile firms who are paying his salary will awake to a realization that they are paying out money for nothing.

The Missouri Pacific has given notice of withdrawal from the executive officers' agreement concerning the maintenance of trans-Missouri passenger rates, on account of the failure of the executive officers at their recent meeting in this city to take some radical action to stop the demoralization of rates from Missouri River to Colorado and Utah.

Commissioner Midgley, of the Western Freight Association, has ruled that a unanimous vote is necessary to permit a road in the association to make a reduced rate.

The Interstate Commerce Commission has summoned the traffic officers of the principal Western roads to appear before the commission in this city Aug. 4 and answer whether they have, directly or indirectly, given unlawful concessions to shippers on business from Kansas City, Omaha, St. Paul and other Missouri River cities to points east thereof As there is no specific complaint filed, it is inferred that the commission intends to investigate on its own hook. Officers of the following roads have been summoned: Atchison, Topeka & Santa Fe; Chicago & Alton; Chicago & Northwestern; Chicago, Burlington & Quincy; Chicago Great Western; Chicago, Milwaukee & St. Paul; Chicago, Rock Island & Pacific; Chicago, St. Paul, Minneapolis & Omaha; Missouri, Kansas & Texas; Missouri Pacific; Illinois Central; Wabash and Wisconsin Central

The general passenger agents of the Western roads at a meeting in this city refused to accede to the request of Commissioner Blanchard to abolish the payment of ticket commissions in Joint Traffic Association territory.

Total shipments from Chicago to the East last week by lake amounted to 103,565 tons, of which 96,057 tons were grain. Total all-rail shipments East, exclusive of live stock, amounted to 64,810 tons, compared with 46,605 tons for the preceding week, an increase of 18,205 tons, and against 63,873 tons for the corresponding week of last year. The proportions carried by each road were as follows:

Roads.	WEEK TO JULY 11.		WEEK TO JULY 4.	
	Tons.	p. c.	Tons.	p. c.
Michigan Central	5,380	8.3	4,647	10.0
Wabash	8,175	12.6	5,210	11.3
Lake Shore & Mich. South.	8.196	12.7	5,351	11.4
Pitts., Ft. Wayne & Chicago	7.118	11 0	6.557	14.5
Pitts., Cin., Chi. & St. Louis.	6.739	10.4	5,468	11.7
Baltimore & Ohio	7,572	11.7	4,123	8.9
Chicago & Grand Trunk	7,669	11.8	4,761	10.2
New York, Chi. & St. Louis.	5.597	8 6	3,967	8.4
Erie	6,359	9,8	4,863	10.4
C., C., C. & St. Louis	2,005	3.1	1,486	3.2
Totals	61,810	100.0	46,605	100.0

Of the above shipments 2,232 tons were flour, 23,218 tons grain, 12,919 tons provisions, 11,001 tons dressed beef 3,463 tons butter, 1,278 tons hides and 4.700 tons lumber'